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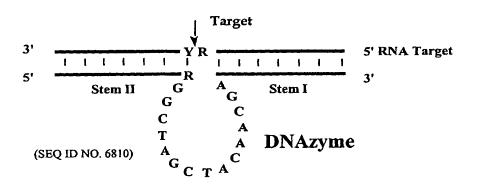
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(54) Title: NUCLEIC ACID TREATMENT OF DISEASES OR CONDITIONS RELATED TO LEVELS OF RAS, HER2 AND HΙV

### DNAzyme Motif



Legend

Y = U or C R = A or G

(57) Abstract: The present invention relates to nucleic acid molecules, including enzymatic nucleic acid molecules, such as DNAzymes (e.g. DNA enzymes, catalytic DNA), siRNA, aptamers, and antisense that modulate the expression of Ras genes such as K-Ras, H-Ras, and/or N-Ras, HIV genes such as HIV-1, and HER2 genes.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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### **DESCRIPTION**

# NUCLEIC ACID TREATMENT OF DISEASES OR CONDITIONS RELATED TO LEVELS OF RAS, HER2 AND HIV

This patent application claims priority from McSwiggen USSN 60/294,140, filed May 29, 2001, entitled "Enzymatic Nucleic Acid Treatment of Diseases or Conditions Related To Levels of HIV," McSwiggen USSN 60/296,249 filed June 6, 2001, entitled "Enzymatic Nucleic Acid Treatment of Diseases or Conditions Related to Levels of HER2," and McSwiggen USSN 60/318,471, filed September 10, 2001, entitled "Enzymatic Nucleic Acid Treatment of diseases or Conditions Related to Levels of RAS." Each of these applications is hereby incorporated by reference herein in its entirety including the drawings and tables.

### **Technical Field Of The Invention**

The present invention relates to novel nucleic acid compounds and methods for the treatment or diagnosis of diseases or conditions related to levels of Ras gene expression, such as K-Ras, H-Ras, and/or N-Ras expression, HIV infection such as HIV-1, and HER2 gene expression.

### **Background Of The Invention**

Transformation is a cumulative process whereby normal control of cell growth and differentiation is interrupted, usually through the accumulation of mutations affecting the expression of genes that regulate cell growth and differentiation.

The platelet derived growth factor (PDGF) system has served as a prototype for identification of substrates of the receptor tyrosine kinases. Certain enzymes become activated by the PDGF receptor kinase, including phospholipase C and phosphatidylinositol 3' kinase, Ras guanosine triphosphate (GTPase) activating protein (GAP) and src-like tyrosine kinases. GAP regulates the function of the Ras protein by stimulating the GTPase activity of the 21 kD Ras protein. Barbacid, 56 Ann. Rev. Biochem. 779, 1987. Microinjection of oncogenically activated Ras into NIH 3T3 cells has been shown to induce DNA synthesis. Mutations that cause oncogenic activation of Ras lead to accumulation of Ras bound to GTP, the active form of the molecule. These mutations block the ability of GAP to convert Ras to the inactive form. Mutations that impair the interactions of Ras with GAP also block the biological function of Ras.

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While a number of Ras alleles exist (N-Ras, K-Ras, H-Ras) which have been implicated in carcinogenesis, the type most often associated with colon and pancreatic carcinomas is K-Ras. Enzymatic nucleic acid molecules which are targeted to certain regions of the K-Ras allelic mRNAs may also prove inhibitory to the function of the other allelic mRNAs of the N-Ras and H-Ras genes.

Scanlon, International PCT Publication Nos. WO 91/18625, WO 91/18624, and WO 91/18913 describes a ribozyme effective to cleave oncogene RNA from the H-Ras gene. This ribozyme is said to inhibit H-ras expression in response to exogenous stimuli. Reddy WO92/00080 describes the use of ribozymes as therapeutic agents for leukemias, such as chronic myelogenous leukemia (CML) by targeting specific portions of the BCR-ABL gene transcript.

Thompson et al., International PCT publication No. WO 99/54459, describe nucleic acid molecules that modulate gene expression, including Ras gene expression.

Zhang et al., 2000, Gene Ther., 7, 2041; Takunaga et al., 2000, Br. J. Cancer., 83, 833; Zhang et al., 2000, Mol. Biotechnol., 15, 39; Irie et al., 2000, Mol. Urol. 4, 61; Kijima and 15 Scanlon, 2000, Mol. Biotechnol., 14, 59; Funato et al., 2000, Cancer Gene Ther., 7, 495; Tsuchida et al., 2000, Cancer Gene Ther., 7, 373; Zhang et al., 2000, Methods Mol. Med., 35, 261; Irie et al., 1999, Antisense Nucleic Acid Drug Dev., 9, 341; Giannini et al., 1999, Nucleic Acids Res., 27, 2737; Fang et al., 1999, J. Med. Coll. PLA, 14, 25; Tong et al., 1998, Methods Mol. Med., 11, 209; Ohkawa and Kashani-Sabet, 1998, Methods Mol. Med., 11, 153; 20 Scherr et al., 1999, Gene Ther., 6, 152; Tsuchida et al., 1998, Biochem. Biophys. Res. Commun., 252, 368; Scherr et al., 1998, Gene Ther., 5, 1227; Uhlmann et al., European Patent Application EP 808898; Scherr et al., 1997, J. Biol. Chem., 272, 14304; Chang et al., 1997, J. Cancer Res. Clin. Oncol., 123, 91; Ohta et al., 1996, Nucleic Acids Res., 24, 938; Ohta et al., 1994, Ann. N.Y. Acad. Sci., 716, 242; and Funato et al., 1994, Biochem. 25 Pharmacol., 48, 1471 all describe specific ribozymes targeting certain K-Ras, H-Ras, or N-Ras RNA sequences.

Todd, International PCT Publication Nos. WO 01/49877, WO 99/50452, and WO 99/45146 describes specific DNAzymes targeting K-Ras for diagnostic applications.

Acquired immunodeficiency syndrome (AIDS) is thought to be caused by infection with the human immunodeficiency virus, for example HIV-1. Draper *et al.*, U.S. Patent Nos. 6,159,692, 5,972,704, 5,693,535, and International PCT Publication Nos. WO WO 93/23569,

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WO 95/04818, describe enzymatic nucleic acid molecules targeting HIV. Todd *et al.*, International PCT Publication No. WO 99/50452, describe methods for using specific DNAzyme motifs for detecting the presence of certain HIV RNAs. Sriram and Banerjea, 2000, *Biochem J.*, 352, 667-673, describe specific RNA cleaving DNA enzymes targeting HIV-1. Zhang *et al.*, 1999, *FEBS Lett.*, 458, 151-156, describe specific RNA cleaving DNA enzymes used in the inhibition of HIV-1 infection.

HER2 (also known as neu, erbB2 and c-erbB2) is an oncogene that encodes a 185-kDa transmembrane tyrosine kinase receptor. HER2 is a member of the epidermal growth factor receptor (EGFR) family and shares partial homology with other family members. In normal adult tissues HER2 expression is low. However, HER2 is overexpressed in at least 25-30% of breast (McGuire, H.C. and Greene, M.I. (1989) The neu (c-erbB-2) oncogene. Semin. Oncol. 16: 148-155) and ovarian cancers (Berchuck, A. Kamel, A., Whitaker, R. et al. (1990)). Overexpression of her-2/neu is associated with poor survival in advanced epithelial ovarian cancer. Cancer Research 50: 4087-4091). Furthermore, overexpression of HER2 in malignant breast tumors has been correlated with increased metastasis, chemoresistance and poor survival rates (Slamon et al., 1987 Science 235: 177-182). Because HER2 expression is high in aggressive human breast and ovarian cancers, but low in normal adult tissues, it is an attractive target for enzymatic nucleic acid-mediated therapy. McSwiggen et al., International PCT Publication No. WO 01/16312 and Beigelman et al., International PCT Publication No. WO 99/55857 describe enzymatic nucleic acid molecules targeting HER2. Thompson and Draper, US Patent No. 5,599,704, describes enzymatic nucleic acid molecules targeting HER2 (erbB2/neu) gene expression.

### Summary Of The Invention

The present invention features nucleic acid molecules, including, for example, antisense oligonucleotides, siRNA, aptamers, decoys and enzymatic nucleic acid molecules such as DNAzyme enzymatic nucleic acid molecules, which modulate expression of nucleic acid molecules encoding Ras oncogenes, such as K-Ras, H-Ras, and N-Ras. In one embodiment, the invention features an enzymatic nucleic acid molecule comprising a sequence selected from the group consisting of SEQ ID NOs: 2329-4655.

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In another embodiment, the invention features an enzymatic nucleic acid molecule comprising at least one binding arm having a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs: 1-2328.

In another embodiment, the invention features a siRNA molecule having complementarity to a sequence selected from the group consisting of SEQ ID NOs: 1-2328.

In another embodiment, the invention features an antisense molecule having complementarity to a sequence selected from the group consisting of SEQ ID NOs: 1-2328.

In another aspect of the invention, the nucleic acid of the invention is adapted to treat cancer.

In one embodiment, the enzymatic nucleic acid molecule of the invention has an endonuclease activity to cleave RNA having a K-Ras sequence.

In another embodiment, the enzymatic nucleic acid molecule of the invention has an endonuclease activity to cleave RNA having an H-Ras sequence.

In another embodiment, the enzymatic nucleic acid molecule of the invention has an endonuclease activity to cleave RNA having an N-Ras sequence.

In one embodiment, the siRNA molecule of the invention has RNA interference activity to K-Ras expression.

In another embodiment, the siRNA molecule of the invention has RNA interference activity to H-Ras expression.

In another embodiment, the siRNA molecule of the invention has RNA interference activity to N-Ras expression.

In one embodiment, a siRNA molecule of the invention comprises a double stranded RNA wherein one strand of the RNA is complementary to the RNA of K-Ras, H-Ras, and/or N-Ras gene. In another embodiment, a siRNA molecule of the invention comprises a double stranded RNA wherein one strand of the RNA comprises a portion of a sequence of RNA of K-Ras, H-Ras, and/or N-Ras gene sequence. In yet another embodiment, a siRNA molecule of the invention comprises a double stranded RNA wherein both strands of RNA are connected by a non-nucleotide linker. Alternately, a siRNA molecule of the invention comprises a double stranded RNA wherein both strands of RNA are connected by a nucleotide linker, such as a loop or stem loop structure.

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In one embodiment, a single strand component of a siRNA molecule of the invention is from about 14 to about 50 nucleotides in length. In another embodiment, a single strand component of a siRNA molecule of the invention is about 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, or 28 nucleotides in length. In yet another embodiment, a single strand component of a siRNA molecule of the invention is about 23 nucleotides in length. In one embodiment, a siRNA molecule of the invention is from about 28 to about 56 nucleotides in length. In another embodiment, a siRNA molecule of the invention is about 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, or 52 nucleotides in length. In yet another embodiment, a siRNA molecule of the invention is about 46 nucleotides in length.

In one embodiment, the DNAzyme molecule of the invention is in a "10-23" configuration (see for example Santoro et al., 1997, PNAS, 94, 4262 and Joyce et al., US 5,807,718). In another embodiment, the DNAzyme comprises a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs: 1-2328. In yet another embodiment, the DNAzyme comprises a sequence selected from the group consisting of SEQ ID NOs: 2329-4655.

In another embodiment, the nucleic acid molecule of the invention comprises between 12 and 100 bases complementary to a nucleic acid molecule having a K-Ras sequence. In yet another embodiment, the enzymatic nucleic acid comprises between 14 and 24 bases complementary to a nucleic acid molecule having a K-Ras sequence.

In another embodiment, the nucleic acid molecule of the invention comprises between 12 and 100 bases complementary to a nucleic acid molecule having an H-Ras sequence. In yet another embodiment, the nucleic acid molecule of the invention comprises between 14 and 24 bases complementary to a nucleic acid molecule having an H-Ras sequence.

In another embodiment, the nucleic acid molecule of the invention comprises between 12 and 100 bases complementary to a nucleic acid molecule having an N-Ras sequence. In yet another embodiment, the nucleic acid molecule of the invention comprises between 14 and 24 bases complementary to a nucleic acid molecule having an N-Ras sequence.

In yet another embodiment, the nucleic acid molecule of the invention is chemically synthesized. The nucleic acid molecule can comprise at least one 2'-sugar modification, at least one nucleic acid base modification, and/or at least one phosphate backbone modification.

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In one embodiment, the invention features a mammalian cell comprising the nucleic acid molecule of the invention. In another embodiment, the mammalian cell of the invention is a human cell.

In another embodiment, the invention features a method of modulating K-Ras activity in a cell, comprising contacting the cell with the nucleic acid molecule of the invention, under conditions suitable for the modulation of K-Ras activity.

In another embodiment, the invention features a method of modulating H-Ras activity in a cell, comprising contacting the cell with the nucleic acid molecule of the invention, under conditions suitable for the modulation of H-Ras activity.

In another embodiment, the invention features a method of modulating N-Ras activity in a cell, comprising contacting the cell with the nucleic acid molecule of the invention, under conditions suitable for the modulation of N-Ras activity.

In another embodiment, the invention features a method of treatment of a subject having a condition associated with the level of K-Ras, comprising contacting cells of the subject with the nucleic acid molecule of the invention, under conditions suitable for the treatment.

In another embodiment, the invention features a method of treatment of a subject having a condition associated with the level of H-Ras, comprising contacting cells of the subject with the nucleic acid molecule of the invention, under conditions suitable for the treatment.

In another embodiment, the invention features a method of treatment of a subject having a condition associated with the level of N-Ras, comprising contacting cells of the subject with the nucleic acid molecule of the invention, under conditions suitable for the treatment.

In one embodiment, a method of treatment of the invention further comprises the use of one or more drug therapies under conditions suitable for the treatment.

In another embodiment, the invention features a method of cleaving RNA having a K-Ras sequence comprising contacting the K-Ras RNA with the enzymatic nucleic acid molecule of the invention under conditions suitable for the cleavage, for example, where the cleavage is carried out in the presence of a divalent cation, such as Mg2+.

In another embodiment, the invention features a method of cleaving RNA having a H-Ras sequence comprising contacting the H-Ras RNA with the enzymatic nucleic acid molecule of the invention under conditions suitable for the cleavage, for example, where the cleavage is carried out in the presence of a divalent cation, such as Mg2+.

In another embodiment, the invention features a method of cleaving RNA having an N-Ras sequence comprising contacting the N-Ras RNA with the enzymatic nucleic acid molecule of the invention under conditions suitable for the cleavage, for example, where the cleavage is carried out in the presence of a divalent cation, such as Mg2+.

In one embodiment, the nucleic acid molecule of the invention comprises a cap structure, for example, a 3',3'-linked or 5',5'-linked deoxyabasic ribose derivative, wherein the cap structure is at the 5'-end, 3'-end, or both the 5'-end and the 3'-end of the nucleic acid molecule.

In another embodiment, the invention features an expression vector comprising a nucleic acid sequence encoding at least one nucleic acid molecule of the invention in a manner that allows expression of the nucleic acid molecule. For example, the invention features an expression vector comprising a nucleic acid encoding a DNAzyme in a manner that allows expression of the DNAzyme.

In yet another embodiment, the invention features a mammalian cell, for example a human cell, comprising an expression vector of the invention.

In another embodiment, the expression vector of the invention further comprises a sequence for a nucleic acid molecule complementary to an RNA having K-Ras sequence.

In another embodiment, the expression vector of the invention further comprises a sequence for a nucleic acid molecule complementary to an RNA having H-Ras sequence.

In another embodiment, the expression vector of the invention further comprises a sequence for a nucleic acid molecule complementary to an RNA having N-Ras sequence.

In one embodiment, an expression vector of the invention comprises a nucleic acid sequence encoding two or more nucleic acid molecules of the invention, which can be the same or different. In another embodiment, an expression vector of the invention further comprises a sequence encoding an antisense nucleic acid molecule complementary to an RNA having a K-Ras, H-Ras or N-Ras sequence.

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In another embodiment, the invention features a method for treating cancer, for example colorectal cancer, bladder cancer, lung cancer, pancreatic cancer, breast cancer, or prostate cancer, comprising administering to a subject a nucleic acid molecule of the invention under conditions suitable for the treatment. A method of treatment of cancer of the invention can further comprise administering to a patient one or more other therapies, for example, monoclonal antibody therapy, such as Herceptin (trastuzumab); chemotherapy, such as paclitaxel (Taxol), docetaxel, cisplatin, methotrexate, cyclophosphamide, doxorubin, fluorouracil carboplatin, Leucovorin, Irinotecan (CAMPTOSAR® or CPT-11 or Camptohecin-11 or Campto), Carboplatin, edatrexate, gemcitabine, or vinorelbine; radiation therapy, or analgesic therapy and/or any combination thereof.

In another embodiment, the invention features a composition comprising a nucleic acid molecule of the invention in a pharmaceutically acceptable carrier.

In one embodiment, the invention features a method of administering to a cell, for example a mammalian cell or human cell, the nucleic acid molecule of the invention comprising contacting the cell with the nucleic acid molecule under conditions suitable for administration. The method of administration can be in the presence of a delivery reagent, for example a lipid, cationic lipid, phospholipid, or liposome.

The present invention features an enzymatic nucleic acid molecule which modulates expression of a nucleic acid molecule encoding a human immunodeficiency virus (HIV), for example HIV-1, HIV-2, and related viruses such as FIV-1 and SIV-1, or a HIV gene, for example LTR, nef, vif, tat, or rev, wherein the enzymatic nucleic acid molecule comprises a DNAzyme configuration.

The invention also features an enzymatic nucleic acid molecule which modulates expression of a nucleic acid molecule encoding HIV or a component of HIV such as net, vif, tat, or rev, wherein the enzymatic nucleic acid molecule is in a Inozyme, G-cleaver, Zinzyme, DNAzyme or Amberzyme configuration.

The present invention also features a siRNA molecule which modulates expression of a nucleic acid molecule encoding a human immunodeficiency virus (HIV), for example HIV-1, HIV-2, and related viruses such as FIV-1 and SIV-1, or a HIV gene, for example LTR, nef, vif, tat, or rev.

The present invention features an enzymatic nucleic acid molecule comprising a sequence selected from the group consisting of SEQ ID NOs. 6727-6799. The invention also features an enzymatic nucleic acid molecule comprising at least one binding arm wherein one

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or more of said binding arms comprises a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs. 6642-6726. In addition, the present invention features a siRNA nucleic acid molecule comprising sequence complementary to a sequence selected from the group consisting of SEQ ID NOs. 1-76 and 140-148.

In another embodiment, the siRNA molecule of the invention has RNA interference activity to HIV-1 expression and/or replication.

In one embodiment, a siRNA molecule of the invention comprises a double stranded RNA wherein one strand of the RNA is complementary to the RNA of HIV-1 genome or genes. In another embodiment, a siRNA molecule of the invention comprises a double stranded RNA wherein one strand of the RNA comprises a portion of a sequence of HIV-1 genome or gene sequence. In yet another embodiment, a siRNA molecule of the invention comprises a double stranded RNA wherein both strands of RNA are connected by a non-nucleotide linker. Alternately, a siRNA molecule of the invention comprises a double stranded RNA wherein both strands of RNA are connected by a nucleotide linker, such as a loop or stem loop structure.

In one embodiment, a single strand component of a siRNA molecule of the invention is from about 14 to about 50 nucleotides in length. In another embodiment, a single strand component of a siRNA molecule of the invention is about 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, or 28 nucleotides in length. In yet another embodiment, a single strand component of a siRNA molecule of the invention is about 23 nucleotides in length. In one embodiment, a siRNA molecule of the invention is from about 28 to about 56 nucleotides in length. In another embodiment, a siRNA molecule of the invention is about 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, or 52 nucleotides in length. In yet another embodiment, a siRNA molecule of the invention is about 46 nucleotides in length.

In one embodiment, a nucleic acid molecule of the invention is adapted to treat HIV infection or acquired immunodeficiency syndrome (AIDS).

In another embodiment, the enzymatic nucleic acid molecule of the invention has an endonuclease activity to cleave RNA having HIV sequence.

In yet another embodiment, the enzymatic nucleic acid molecule of the invention is in an Inozyme, Zinzyme, G-cleaver, Amberzyme, DNAzyme or Hammerhead configuration.

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In another embodiment, the Inozyme of the invention comprises a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs. 6648-6655, or comprises a sequence selected from the group consisting of SEQ ID NOs. 6733-6740.

In another embodiment, the Zinzyme of the invention comprises a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs. 6656-6663 and 6723-6726, or comprises a sequence selected from the group consisting of SEQ ID NOs 6741-6748 and 6795-6799.

In another embodiment, the Amberzyme of the invention comprises a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs. 6656-6688, or comprises a sequence selected from the group consisting of SEQ ID NOs. 6762-6789.

In another embodiment, the DNAzyme of the invention comprises a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs. 6656-6668 and 6718-6722, or comprises a sequence selected from the group consisting of SEQ ID NOs. 6749-6761 and 6790-6794.

In another embodiment, the Hammerhead of the invention comprises a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs. 6642-6647, or comprises a sequence selected from the group consisting of SEQ ID NOs 6727-6732.

In one embodiment, a nucleic acid molecule of the invention comprises between 12 and 100 bases complementary to a RNA sequence encoding HIV genome, RNA, and/or proteins. In another embodiment, a nucleic acid molecule of the invention comprises between 14 and 24 bases complementary to a RNA sequence encoding HIV genome, RNA, and/or proteins.

In yet another embodiment, a nucleic acid molecule of the invention is chemically synthesized. A nucleic acid molecule of the invention can comprise at least one 2'-sugar modification, at least one nucleic acid base modification, and/or at least one phosphate backbone modification.

The present invention features a mammalian cell including a nucleic acid molecule of the invention. In one embodiment, the mammalian cell of the invention is a human cell.

The invention features a method of reducing HIV activity in a cell, comprising contacting the cell with a nucleic acid molecule of the invention, under conditions suitable for the reduction of HIV activity.

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The invention also features a method of treating a subject having a condition associated with the level of HIV, comprising contacting cells of the subject with a nucleic acid molecule of the invention, under conditions suitable for the treatment.

In one embodiment, methods of treatment contemplated by the invention comprise the use of one or more drug therapies under conditions suitable for the treatment.

The invention features a method of cleaving RNA comprising a HIV nucleic acid sequence comprising contacting an enzymatic nucleic acid molecule of the invention with the RNA under conditions suitable for the cleavage. In one embodiment, the cleavage contemplated by the invention is carried out in the presence of a divalent cation, for example Mg<sup>2+</sup>.

The present invention features a method for treatment of acquired immunodeficiency syndrome (AIDS) or an AIDS related condition, for example Kaposi's sarcoma, lymphoma, cervical cancer, squamous cell carcinoma, cardiac myopathy, rheumatic disease, or opportunistic infection, comprising administering to a subject a nucleic acid molecule of the invention under conditions suitable for the treatment.

In one embodiment, nucleic acid molecule of the invention comprises at least five ribose residues, at least ten 2'-O-methyl modifications, and a 3'- end modification, for example a 3'-3' inverted abasic moiety.

In another embodiment, a nucleic acid molecule of the invention further comprises phosphorothicate linkages on at least three of the 5' terminal nucleotides.

In yet another embodiment, a DNAzyme of the invention comprises at least ten 2'-O-methyl modifications and a 3'-end modification, for example a 3'-3' inverted abasic moiety. In a further embodiment, the DNAzyme of the invention further comprises phosphorothioate linkages on at least three of the 5' terminal nucleotides.

In another embodiment, other drug therapies of the invention comprise antiviral therapy, monoclonal antibody therapy, chemotherapy, radiation therapy, analgesic therapy, or anti-inflammatory therapy.

In yet another embodiment, antiviral therapy of the invention comprises treatment with AZT, ddC, ddI, d4T, 3TC, Ribavirin, delvaridine, nevirapine, efravirenz, ritonavir, saquinivir, indinavir, amprenivir, nelfinavir, or lopinavir.

The invention features a composition comprising a nucleic acid molecule of the invention in a pharmaceutically acceptable carrier.

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In one embodiment, the invention features a method of administering to a cell, for example a mammalian cell or human cell, an enzymatic nucleic acid molecule of the invention comprising contacting the cell with the enzymatic nucleic acid molecule under conditions suitable for the administration. The method of administration can be in the presence of a delivery reagent, for example a lipid, cationic lipid, phospholipid, or liposome.

The present invention features enzymatic nucleic acid molecules which modulate expression of nucleic acid molecules encoding HER2. The present invention also features siRNA molecules which modulate the expression of nucleic acid molecules encoding HER2.

In another embodiment, the invention features a siRNA molecule having complementarity to a sequence selected from the group consisting of SEQ ID NOs: 4656-5643 and 6632-6636.

In one embodiment, the invention features an enzymatic nucleic acid molecule comprising a sequence selected from the group consisting of SEQ ID NOs: 5644-6631 and 6637-6641.

In another embodiment, the invention features an enzymatic nucleic acid molecule comprising at least one binding arm having a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs: 4656-5643 and 6632-6636.

In yet another embodiment, a nucleic acid of the invention is adapted to treat cancer.

In another embodiment, an enzymatic nucleic acid molecule of the invention has an endonuclease activity to cleave RNA having HER2 sequence.

In another embodiment, the siRNA molecule of the invention has RNA interference activity to N-Ras gene expression.

In one embodiment, a siRNA molecule of the invention comprises a double stranded RNA wherein one strand of the RNA is complementary to the RNA of HER2 gene. In another embodiment, a siRNA molecule of the invention comprises a double stranded RNA wherein one strand of the RNA comprises a portion of a sequence of RNA having of HER2 gene sequence. In yet another embodiment, a siRNA molecule of the invention comprises a double stranded RNA wherein both strands of RNA are connected by a non-nucleotide linker. Alternately, a siRNA molecule of the invention comprises a double stranded RNA wherein both strands of RNA are connected by a nucleotide linker, such as a loop or stem loop structure.

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In one embodiment, a single strand component of a siRNA molecule of the invention is from about 14 to about 50 nucleotides in length. In another embodiment, a single strand component of a siRNA molecule of the invention is about 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, or 28 nucleotides in length. In yet another embodiment, a single strand component of a siRNA molecule of the invention is about 23 nucleotides in length. In one embodiment, a siRNA molecule of the invention is from about 28 to about 56 nucleotides in length. In another embodiment, a siRNA molecule of the invention is about 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, or 52 nucleotides in length. In yet another embodiment, a siRNA molecule of the invention is about 46 nucleotides in length.

In one embodiment, a DNAzyme molecule of the invention is in a "10-23" configuration. In another embodiment, a DNAzyme of the invention comprises a sequence complementary to a sequence having SEQ ID NOs: 4656-5643 and 6632-6636. In yet another embodiment, a DNAzyme molecule of the invention comprises a sequence having SEQ ID NOs: 5644-6631 and 6637-6641.

In another embodiment, a nucleic acid molecule of the invention comprises between 12 and 100 bases complementary to a nucleic acid molecule having HER2 sequence. In yet another embodiment, a nucleic acid molecule of the invention comprises between 14 and 24 bases complementary to a nucleic acid molecule having HER2 sequence.

In yet another embodiment, a nucleic acid molecule of the invention is chemically synthesized. A nucleic acid molecule of the invention can comprise at least one 2'-sugar modification, at least one nucleic acid base modification, and/or at least one phosphate backbone modification.

In one embodiment, the invention features a mammalian cell comprising a nucleic acid molecule of the invention. In another embodiment, the mammalian cell of the invention is a human cell.

In another embodiment, the invention features a method of reducing HER2 activity in a cell, comprising contacting the cell with the nucleic acid molecule of the invention, under conditions suitable for the reduction of HER2 activity.

In another embodiment, the invention features a method of treatment of a subject having a condition associated with the level of HER2, comprising contacting cells of the subject with the nucleic acid molecule of the invention, under conditions suitable for the treatment.

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In one embodiment, a method of treatment of the invention further comprises the use of one or more drug therapies under conditions suitable for the treatment.

In another embodiment, the invention features a method of cleaving RNA having HER2 sequence comprising contacting an enzymatic nucleic acid molecule of the invention with the RNA under conditions suitable for the cleavage, for example, where the cleavage is carried out in the presence of a divalent cation, such as Mg2+.

In one embodiment, a nucleic acid molecule of the invention comprises a cap structure, for example a 3',3'-linked or 5',5'-linked deoxyabasic ribose derivative, wherein the cap structure is at the 5'-end, 3'-end, or both the 5'-end and the 3'-end of the enzymatic nucleic acid molecule.

In another embodiment, the invention features an expression vector comprising a nucleic acid sequence encoding at least one nucleic acid molecule of the invention, for example a DNAzyme or siRNA molecule, in a manner that allows expression of the nucleic acid molecule.

In yet another embodiment, the invention features a mammalian cell, for example a 15 human cell, comprising an expression vector of the invention.

In another embodiment, an expression vector of the invention further comprises a sequence for a nucleic acid molecule complementary to a nucleic acid molecule having HER2 sequence.

In one embodiment, an expression vector of the invention comprises a nucleic acid 20 sequence encoding two or more nucleic acid molecules, which can be the same or different. In another embodiment, an expression vector of the invention further comprises a sequence encoding an antisense nucleic acid molecule complementary to a nucleic acid molecule having a HER2 sequence.

In another embodiment, the invention features a method for treating cancer, for example breast cancer or ovarian cancer, comprising administering to a subject a nucleic acid molecule of the invention under conditions suitable for the treatment. A method of treatment of cancer of the invention can further comprise administering to a patient one or more other therapies, for example, monoclonal antibody therapy, such as Herceptin (trastuzumab); methotrexate, cisplatin, docetaxel. (Taxol), such paclitaxel chemotherapy, 30 Irinotecan Leucovorin, fluorouracil carboplatin, cyclophosphamide, doxorubin, (CAMPTOSAR® or CPT-11 or Camptothecin-11 or Campto), Carboplatin, edatrexate,

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gemcitabine, or vinorelbine; radiation therapy, or analgesic therapy and/or any combination thereof.

In another embodiment, the invention features a composition comprising a nucleic acid molecule of the invention in a pharmaceutically acceptable carrier.

In one embodiment, the invention features a method of administering to a cell, for example a mammalian cell or human cell, a nucleic acid molecule of the invention comprising contacting the cell with the nucleic acid molecule under conditions suitable for administration. The method of administration can be in the presence of a delivery reagent, for example a lipid, cationic lipid, phospholipid, or liposome.

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### <u>Detailed Description of the Invention</u>

First the drawings will be described briefly.

### **Drawings**

hammerhead ribozyme motif (Usman et al., 1996, Curr. Op. Struct. Bio., 1, 527); NCH Rz represents the NCH ribozyme motif (Ludwig et al., International PCT Publication No. WO 98/58058 and US Patent Application Serial No. 08/878,640); G-Cleaver, represents G-cleaver ribozyme motif (Kore et al., 1998, Nucleic Acids Research 26, 4116-4120, Eckstein et al., US 6,127,173). N or n, represent independently a nucleotide which can be same or different and have complementarity to each other; rI, represents ribo-Inosine nucleotide; arrow indicates the site of cleavage within the target. Position 4 of the HH Rz and the NCH Rz is shown as having 2'-C-allyl modification, but those skilled in the art will recognize that this position can be modified with other modifications well known in the art, so long as such modifications do not significantly inhibit the activity of the ribozyme.

Figure 2 shows an example of the Amberzyme ribozyme motif that is chemically stabilized (see for example Beigelman *et al.*, International PCT publication No. WO 99/55857 and US Patent Application Serial No. 09/476,387.).

Figure 3 shows an example of a Zinzyme A ribozyme motif that is chemically stabilized (see for example Beigelman *et al.*, International PCT publication No. WO 99/55857 and US Patent Application Serial No. 09/918,728).

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Figure 4 shows an example of a DNAzyme motif described by Santoro et al., 1997, PNAS, 94, 4262 and Joyce et al., US 5,807,718.

The invention features novel nucleic acid molecules, including antisense oligonucleotides, siRNA and enzymatic nucleic acid molecules, and methods to modulate gene expression, for example, genes encoding K-Ras, H-Ras and/or N-Ras. In particular, the instant invention features nucleic-acid based molecules and methods to down-regulate the expression of K-Ras, H-Ras and/or N-Ras gene sequences.

The invention features one or more nucleic acid-based molecules and methods that independently or in combination modulate the expression of a gene or genes encoding Ras proteins. In particular embodiments, the invention features nucleic acid-based molecules and methods that modulate the expression of K-Ras gene, for example, Genbank Accession No. NM\_004985; H-Ras gene, for example, Genbank Accession No. NM\_005343; and/or N-Ras gene, for example, Genbank Accession No. NM\_002524.

The description below of the various aspects and embodiments is provided with reference to exemplary K-Ras, H-Ras, and N-Ras genes, referred to hereinafter collectively as Ras. However, the various aspects and embodiments are directed to equivalent sequences and also to other genes which encode K-Ras, H-Ras and/or N-Ras proteins and similar proteins to K-Ras, H-Ras and/or N-Ras. For example, the invention relates to genes with homology to genes that encode K-Ras, H-Ras and/or N-Ras and genes that encode proteins with similar function to K-Ras, H-Ras, and N-Ras proteins. Those additional genes can be analyzed for target sites using the methods described herein. Thus, the modulation and the effects of such modulation of the other genes can be determined as described herein.

In one embodiment, the invention features the use of an enzymatic nucleic acid molecule, preferably in the hammerhead, NCH, G-cleaver, amberzyme, zinzyme and/or DNAzyme motif, to modulate the expression of a Ras gene or inhibit Ras activity. In one embodiment, the invention features the use of these enzymatic nucleic acid molecules to down-regulate the expression of a Ras gene or inhibit Ras activity. In another embodiment, the invention features the use of an antisense oligonucleotide molecule to modulate, for example, down-regulate, the expression of a Ras gene or inhibit Ras activity.

The invention features novel enzymatic nucleic acid molecules, siRNA molecules, and methods to modulate expression and/or activity of human immunodeficiency virus (HIV), for example HIV-1, HIV-2, and related viruses such as FIV-1 and SIV-1, or a HIV gene, for

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example LTR, nef, vif, tat, or rev. In particular, the instant invention features nucleic-acid based molecules and methods to inhibit the replication of a HIV or related virus.

The invention features one or more nucleic acid-based molecules and methods that independently or in combination modulate the expression of gene(s) encoded by HIV and/or inhibit the replication of HIV. In particular embodiments, the invention features nucleic acid-based molecules and methods that modulate the expression of HIV-1 encoded genes, for example (Genbank Accession No. AJ302647); HIV-2 gene, for example (Genbank Accession No. NC\_001482), SIV-1, for example (Genbank Accession No. NC\_001482), SIV-1, for example (Genbank Accession No. AJ302647), LTR, for example included in (Genbank Accession No. AJ302647), vif, for example included in (Genbank Accession No. AJ302647), tat, for example included in (Genbank Accession No. AJ302647), and rev, for example included in (Genbank Accession No. AJ302647).

The description below of the various aspects and embodiments is provided with reference to the exemplary HIV-1 gene, referred to herein as HIV. However, the various aspects and embodiments are also directed to other genes which encode HIV proteins and similar viruses to HIV. Those additional genes can be analyzed for target sites using the methods described for HIV. Thus, the inhibition and the effects of such inhibition of the other genes can be performed as described herein.

Due to the high sequence variability of the HIV genome, selection of nucleic acid molecules for broad therapeutic applications would likely involve the conserved regions of the HIV genome. Specifically, the present invention describes nucleic acid molecules that cleave the conserved regions of the HIV genome. Therefore, one nucleic acid molecule can be designed to cleave all the different isolates of HIV. Nucleic acid molecules designed against conserved regions of various HIV isolates can enable efficient inhibition of HIV replication in diverse subject populations and can ensure the effectiveness of the nucleic acid molecules against HIV quasi species which evolve due to mutations in the non-conserved regions of the HIV genome.

In one embodiment, the invention features the use of an enzymatic nucleic acid molecule, preferably in the hammerhead, NCH, G-cleaver, amberzyme, zinzyme and/or DNAzyme motif, to down-regulate the expression of HIV genes or inhibit the replication of HIV.

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The invention features novel nucleic acid molecules, siRNA molecules and methods to modulate gene expression, for example, genes encoding HER2. In particular, the instant invention features nucleic-acid based molecules and methods to inhibit the expression of HER2.

The invention features one or more nucleic acid-based molecules and methods that independently or in combination modulate the expression of a gene or genes encoding HER2. In particular embodiments, the invention features nucleic acid-based molecules and methods that modulate the expression of HER2 gene, for example, Genbank Accession No. NM 004448.

The description below of the various aspects and embodiments is provided with reference to an exemplary HER2 gene, referred to herein as HER2 but also known as ERB2, ERB-B2, NEU, NGL, and v-ERB-B2. However, the various aspects and embodiments are also directed to other genes which encode HER2 proteins and similar proteins to HER2. Those additional genes can be analyzed for target sites using the methods described for HER2. Thus, the inhibition and the effects of such inhibition of the other genes can be performed as described herein.

In one embodiment, the invention features the use of an enzymatic nucleic acid molecule, preferably in the hammerhead, NCH, G-cleaver, amberzyme, zinzyme and/or DNAzyme motif, to down-regulate the expression of HER2 genes or inhibit HER2 activity.

By "modulate" is meant that the expression of the gene, or level of RNAs or equivalent RNAs encoding one or more protein subunits or components, or activity of one or more proteins is up-regulated or down-regulated, such that the expression, level, or activity is greater than or less than that observed in the absence of the nucleic acid molecules of the invention.

By "inhibit" or "down-regulate" it is meant that the expression of the gene, or level of RNAs or equivalent RNAs encoding one or more protein subunits or components, or activity of one or more protein subunits or components, such as Ras, HIV, and/or HER2 protein or proteins, is reduced below that observed in the absence of the nucleic acid molecules of the invention. In one embodiment, inhibition or down-regulation with the enzymatic nucleic acid molecule preferably is below that level observed in the presence of an enzymatically inactive or attenuated enzymatic nucleic acid molecule that is able to bind to the same site on the target RNA, but is unable to cleave that RNA. In another embodiment, inhibition or down-

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regulation with an antisense oligonucleotide is preferably below that level observed in the presence of, for example, an oligonucleotide with scrambled sequence or with mismatches. In another embodiment, inhibition or down-regulation with an siRNA molecule is preferably below that level observed in the presence of, for example, an oligonucleotide with scrambled sequence or with mismatches. In another embodiment, inhibition or down-regulation of Ras, HIV, or HER2 expression and/or activity with the nucleic acid molecule of the instant invention is greater in the presence of the nucleic acid molecule than in its absence.

By "up-regulate" is meant that the expression of the gene, or level of RNAs or equivalent RNAs encoding one or more protein subunits or components, or activity of one or more protein subunits or components, such as Ras, HIV, or HER2 protein or proteins, is greater than that observed in the absence of the nucleic acid molecules of the invention. For example, the expression of a gene, such as Ras, HIV, or HER2 gene, can be increased in order to treat, prevent, ameliorate, or modulate a pathological condition caused or exacerbated by an absence or low level of gene expression.

15 By "enzymatic nucleic acid molecule" as used herein, is meant a nucleic acid molecule which has complementarity in a substrate binding region to a specified gene target, and also has an enzymatic activity which is active to specifically cleave target RNA. That is, the enzymatic nucleic acid molecule is able to intermolecularly cleave RNA and thereby inactivate a target RNA molecule. These complementary regions allow sufficient 20 hybridization of the enzymatic nucleic acid molecule to the target RNA and thus permit cleavage. One hundred percent complementarity is preferred, but complementarity as low as 50-75% can also be useful in this invention (see for example Werner and Uhlenbeck, 1995, Nucleic Acids Research, 23, 2092-2096; Hammann et al., 1999, Antisense and Nucleic Acid Drug Dev., 9, 25-31). The nucleic acids can be modified at the base, sugar, and/or phosphate 25 groups. The term DNAzyme-based enzymatic nucleic acid is used interchangeably with phrases such as catalytic DNA, aptazyme or aptamer-binding DNAzyme, regulatable catalytic oligonucleotides, nucleozyme, DNAzyme, endoribonuclease, endonuclease, minizyme, leadzyme, oligozyme or DNA enzyme. All of these terminologies describe nucleic acid molecules with enzymatic activity. The specific enzymatic nucleic acid 30 molecules described in the instant application are not limiting in the invention and those skilled in the art will recognize that all that is important in an enzymatic nucleic acid molecule of this invention is that it have a specific substrate binding site which is complementary to one or more of the target nucleic acid regions, and that it have nucleotide sequences within or surrounding that substrate binding site which impart a nucleic acid 35 cleaving and/or ligation activity to the molecule.

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By "nucleic acid molecule" as used herein is meant a molecule having nucleotides. The nucleic acid can be single, double, or multiple stranded and can comprise modified or unmodified nucleotides or non-nucleotides or various mixtures and combinations thereof.

By "enzymatic portion" or "catalytic domain" is meant that portion/region of the enzymatic nucleic acid molecule essential for cleavage of a nucleic acid substrate (for example see Figures 1-4).

By "substrate binding arm" or "substrate binding domain" is meant that portion/region of a enzymatic nucleic acid which is able to interact, for example via complementarity (i.e., able to base-pair with), with a portion of its substrate. Preferably, such complementarity is 100%, but can be less if desired. For example, as few as 10 bases out of 14 can be base-paired (see for example Werner and Uhlenbeck, 1995, Nucleic Acids Research, 23, 2092-2096; Hammann et al., 1999, Antisense and Nucleic Acid Drug Dev., 9, 25-31). Examples of such arms are shown generally in Figures 1-3. That is, these arms contain sequences within a enzymatic nucleic acid which are intended to bring enzymatic nucleic acid and target RNA together through complementary base-pairing interactions. The enzymatic nucleic acid of the invention can have binding arms that are contiguous or non-contiguous and can be of varying The length of the binding arm(s) are preferably greater than or equal to four nucleotides and of sufficient length to stably interact with the target RNA; preferably 12-100 nucleotides; more preferably 14-24 nucleotides long (see for example Werner and Uhlenbeck, supra; Hamman et al., supra; Hampel et al., EP0360257; Berzal-Herranz et al., 1993, EMBO J., 12, 2567-73). If two binding arms are chosen, the design is such that the length of the binding arms are symmetrical (i.e., each of the binding arms is of the same length; e.g., five and five nucleotides, or six and six nucleotides, or seven and seven nucleotides long) or asymmetrical (i.e., the binding arms are of different length; e.g., six and three nucleotides; three and six nucleotides long; four and five nucleotides long; four and six nucleotides long; four and seven nucleotides long; and the like).

By "Inozyme" or "NCH" motif or configuration is meant, an enzymatic nucleic acid molecule comprising a motif as is generally described as NCH Rz in Figure 1 and in Ludwig et al., International PCT Publication No. WO 98/58058 and US Patent Application Serial No. 08/878,640. Inozymes possess endonuclease activity to cleave nucleic acid substrates having a cleavage triplet NCH/, where N is a nucleotide, C is cytidine and H is adenosine, uridine or cytidine, and "/" represents the cleavage site. H is used interchangeably with X. Inozymes can also possess endonuclease activity to cleave nucleic acid substrates having a cleavage triplet NCN/, where N is a nucleotide, C is cytidine, and "/" represents the cleavage site. "I"

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in Figure 1 represents an Inosine nucleotide, preferably a ribo-Inosine or xylo-Inosine nucleoside.

By "G-cleaver" motif or configuration is meant, an enzymatic nucleic acid molecule comprising a motif as is generally described as G-cleaver Rz in Figure 1 and in Eckstein et al., US 6,127,173. G-cleavers possess endonuclease activity to cleave nucleic acid substrates having a cleavage triplet NYN/, where N is a nucleotide, Y is uridine or cytidine and "/" represents the cleavage site. G-cleavers can be chemically modified as is generally shown in Figure 1.

By "amberzyme" motif or configuration is meant, an enzymatic nucleic acid molecule comprising a motif as is generally described in Figure 2 and in Beigelman et al., International PCT publication No. WO 99/55857 and US Patent Application Serial No. 09/476,387. Amberzymes possess endonuclease activity to cleave nucleic acid substrates having a cleavage triplet NG/N, where N is a nucleotide, G is guanosine, and "/" represents the cleavage site. Amberzymes can be chemically modified to increase nuclease stability through substitutions as are generally shown in Figure 2. In addition, differing nucleoside and/or non-nucleoside linkers can be used to substitute the 5'-gaaa-3' loops shown in the figure. Amberzymes represent a non-limiting example of an enzymatic nucleic acid molecule that does not require a ribonucleotide (2'-OH) group within its own nucleic acid sequence for activity.

By "zinzyme" motif or configuration is meant, an enzymatic nucleic acid molecule comprising a motif as is generally described in Figure 3 and in Beigelman et al., International PCT publication No. WO 99/55857 and US Patent Application Serial No. 09/918,728. Zinzymes possess endonuclease activity to cleave nucleic acid substrates having a cleavage triplet including but not limited to YG/Y, where Y is uridine or cytidine, and G is guanosine and "/" represents the cleavage site. Zinzymes can be chemically modified to increase nuclease stability through substitutions as are generally shown in Figure 3, including substituting 2'-O-methyl guanosine nucleotides for guanosine nucleotides. In addition, differing nucleotide and/or non-nucleotide linkers can be used to substitute the 5'-gaaa-2' loop shown in the figure. Zinzymes represent a non-limiting example of an enzymatic nucleic acid molecule that does not require a ribonucleotide (2'-OH) group within its own nucleic acid sequence for activity.

By 'DNAzyme' is meant, an enzymatic nucleic acid molecule that does not require the presence of a 2'-OH group within its own nucleic acid sequence for activity. In particular

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embodiments the enzymatic nucleic acid molecule can have an attached linker or linkers or other attached or associated groups, moieties, or chains containing one or more nucleotides with 2'-OH groups. DNAzymes can be synthesized chemically or expressed endogenously in vivo, by means of a single stranded DNA vector or equivalent thereof. An example of a DNAzyme is shown in Figure 4 and is generally reviewed in Usman et al., US patent No., 5 6,159,714; Chartrand et al., 1995, NAR 23, 4092; Breaker et al., 1995, Chem. Bio. 2, 655; Santoro et al., 1997, PNAS 94, 4262; Breaker, 1999, Nature Biotechnology, 17, 422-423; and Santoro et. al., 2000, J. Am. Chem. Soc., 122, 2433-39. The "10-23" DNAzyme motif is one particular type of DNAzyme that was evolved using in vitro selection, see Santoro et al., supra and as generally described in Joyce et al., US 5,807,718. Additional DNAzyme motifs 10 can be selected by using techniques similar to those described in these references, and hence, are within the scope of the present invention. DNAzymes of the invention can comprise nucleotides modified at the nucleic acid base, sugar, or phosphate backbone. Non-limiting examples of sugar modifications that can be used in DNAzymes of the invention include 2'-O-alkyl modifications such as 2'-O-methyl or 2'-O-allyl, 2'-C-alkyl modifications such as 2'-15 C-allyl, 2'-deoxy-2'-amino, 2'-halo modifications such as 2'-fluoro, 2'-chloro, or 2'-bromo, isomeric modifications such as arabinofuranose or xylofuranose based nucleic acids, and other sugar modifications such as 4'-thio or 4'-carbocyclic nucleic acids. Non-limiting examples of nucleic acid based modifications that can be used in DNAzymes of the invention include modified purine heterocycles, G-clamp heterocycles, and various modified pyrimidine 20 cycles. Non-limiting examples of backbone modifications that can be used in DNAzymes of the invention include phosphorothioate, phosphorodithioate, phosphoramidate, and methylphosphonate internucleotide linkages. DNAzymes of the invention can comprise naturally occurring nucleic acids, chimeras of chemically modified and naturally occurring nucleic acids, or completely modified nucleic acids. 25

In general, enzymatic nucleic acids act by first binding to a target RNA. Such binding occurs through the target binding portion of a enzymatic nucleic acid that is held in close proximity to an enzymatic portion of the molecule that acts to cleave the target RNA. Thus, the enzymatic nucleic acid first recognizes and then binds a target RNA through complementary base-pairing, and once bound to the correct site, acts enzymatically to cut the target RNA. Strategic cleavage of such a target RNA will destroy its ability to direct synthesis of an encoded protein. After an enzymatic nucleic acid has bound and cleaved its RNA target, it is released from that RNA to search for another target and can repeatedly bind and cleave new targets. Thus, a single enzymatic nucleic acid molecule is able to cleave many molecules of target RNA. In addition, the enzymatic nucleic acid molecule is a highly

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specific inhibitor of gene expression, with the specificity of inhibition depending not only on the base-pairing mechanism of binding to the target RNA, but also on the mechanism of target RNA cleavage. Single mismatches, or base-substitutions, near the site of cleavage can completely eliminate catalytic activity of an enzymatic nucleic acid molecule.

By "sufficient length" is meant an oligonucleotide of greater than or equal to 3 nucleotides that is of a length great enough to provide the intended function under the expected condition. For example, for binding arms of enzymatic nucleic acid "sufficient length" means that the binding arm sequence is long enough to provide stable binding to a target site under the expected binding conditions. Preferably, the binding arms are not so long as to prevent useful turnover of the nucleic acid molecule.

By "stably interact" is meant interaction of oligonucleotides with target nucleic acid molecules (e.g., by forming hydrogen bonds with complementary nucleotides in the target under physiological conditions) that is sufficient to the intended purpose (e.g., cleavage of target RNA by an enzyme).

By "equivalent" RNA to Ras is meant to include those naturally occurring RNA molecules having homology (partial or complete) to Ras nucleic acids or encoding for proteins with similar function as Ras proteins in various organisms, including humans, rodents, primates, rabbits, pigs, protozoans, fungi, plants, and other microorganisms and parasites. The equivalent RNA sequence can also include, in addition to the coding region, regions such as a 5'-untranslated region, a 3'-untranslated region, introns, a intron-exon junction and the like.

By "equivalent" RNA to HIV is meant to include those naturally occurring RNA molecules having homology (partial or complete) to HIV nucleic acids or encoding for proteins with similar function as HIV proteins in various organisms, including human, rodent, primate, rabbit, pig, protozoans, fungi, plants, and other microorganisms and parasites. The equivalent RNA sequence also includes in addition to the coding region, regions such as 5'-untranslated region, 3'-untranslated region, intron-exon junction and the like.

By "equivalent" RNA to HER2 is meant to include those naturally occurring RNA molecules having homology (partial or complete) to HER2 nucleic acids or encoding for proteins with similar function as HER2 proteins in various organisms, including humans, rodents, primates, rabbits, pigs, protozoans, fungi, plants, and other microorganisms and parasites. The equivalent RNA sequence also includes, in addition to the coding region,

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regions such as a 5'-untranslated region, a 3'-untranslated region, introns, a intron-exon junction and the like.

By "homology" is meant the nucleotide sequence of two or more nucleic acid molecules is partially or completely identical.

By "component" of HIV is meant a peptide or protein expressed from an HIV gene, for example nef, vif, tat, or rev viral gene products.

By "component" of HER2 is meant a peptide or protein subunit expressed from a HER2 gene.

By "component" of Ras is meant a peptide or protein subunit expressed from a Ras 10 gene.

By "gene" it is meant a nucleic acid that encodes an RNA, for example, nucleic acid sequences including but not limited to structural genes encoding a polypeptide.

"Complementarity" refers to the ability of a nucleic acid to form hydrogen bond or bonds with another RNA sequence by either traditional Watson-Crick or other non-traditional types. In reference to the nucleic molecules of the present invention, the binding free energy for a nucleic acid molecule with its target or complementary sequence is sufficient to allow the relevant function of the nucleic acid to proceed, e.g., enzymatic nucleic acid cleavage, antisense or triple helix inhibition. Determination of binding free energies for nucleic acid molecules is well known in the art (see, e.g., Turner et al., 1987, CSH Symp. Quant. Biol. LII pp.123-133; Frier et al., 1986, Proc. Nat. Acad. Sci. USA 83:9373-9377; Turner et al., 1987, J. Am. Chem. Soc. 109:3783-3785). A percent complementarity indicates the percentage of contiguous residues in a nucleic acid molecule that can form hydrogen bonds (e.g., Watson-Crick base pairing) with a second nucleic acid sequence (e.g., 5, 6, 7, 8, 9, 10 out of 10 being 50%, 60%, 70%, 80%, 90%, and 100% complementary). "Perfectly complementary" means that all the contiguous residues of a nucleic acid sequence will hydrogen bond with the same number of contiguous residues in a second nucleic acid sequence.

By "RNA" is meant a molecule comprising at least one ribonucleotide residue. By "ribonucleotide" or "2'-OH" is meant a nucleotide with a hydroxyl group at the 2' position of a  $\beta$ -D-ribo-furanose moiety.

By "decoy " is meant a nucleic acid molecule, for example RNA or DNA, or aptamer that is designed to preferentially bind to a predetermined ligand. Such binding can result in

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the inhibition or activation of a target molecule. A decoy or aptamer can compete with a naturally occurring binding target for the binding of a specific ligand. For example, it has been shown that over-expression of HIV trans-activation response (TAR) RNA can act as a "decoy" and efficiently binds HIV tat protein, thereby preventing it from binding to TAR sequences encoded in the HIV RNA (Sullenger et al., 1990, Cell, 63, 601-608). This is but a specific example and those in the art will recognize that other embodiments can be readily generated using techniques generally known in the art, see for example Gold et al., 1995, Annu. Rev. Biochem., 64, 763; Brody and Gold, 2000, J. Biotechnol., 74, 5; Sun, 2000, Curr. Opin. Mol. Ther., 2, 100; Kusser, 2000, J. Biotechnol., 74, 27; Hermann and Patel, 2000, Science, 287, 820; and Jayasena, 1999, Clinical Chemistry, 45, 1628. Similarly, a decoy can be designed to bind to Ras and block the binding of Ras or a decoy can be designed to bind to Ras and prevent interaction with the Ras protein.

By "aptamer" or "nucleic acid aptamer" as used herein is meant a nucleic acid molecule that binds specifically to a target molecule wherein the nucleic acid molecule has sequence that is distinct from sequence recognized by the target molecule in its natural setting. Alternately, an aptamer can be a nucleic acid molecule that binds to a target molecule where the target molecule does not naturally bind to a nucleic acid. The target molecule can be any molecule of interest. For example, the aptamer can be used to bind to a ligand binding domain of a protein, thereby preventing interaction of the naturally occurring ligand with the protein. Similarly, the nucleic acid molecules of the instant invention can bind to RAS, Her-2 or HIV encoded RNA or proteins receptors to block activity of the activity of target protein or nucleic acid. This is a non-limiting example and those in the art will recognize that other embodiments can be readily generated using techniques generally known in the art, see for example Gold et al., US 5,475,096 and 5,270,163; Gold et al., 1995, Annu. Rev. Biochem., 64, 763; Brody and Gold, 2000, J. Biotechnol., 74, 5; Sun, 2000, Curr. Opin. Mol. Ther., 2, 100; Kusser, 2000, J. Biotechnol., 74, 27; Hermann and Patel, 2000, Science, 287, 820; and Jayasena, 1999, Clinical Chemistry, 45, 1628.

The term "short interfering RNA" or "siRNA" as used herein refers to a double stranded nucleic acid molecule capable of RNA interference "RNAi", see for example Bass, 30. 2001, Nature, 411, 428-429; Elbashir et al., 2001, Nature, 411, 494-498; and Kreutzer et al., International PCT Publication No. WO 00/44895; Zernicka-Goetz et al., International PCT Publication No. WO 01/36646; Fire, International PCT Publication No. WO 99/32619; Plaetinck et al., International PCT Publication No. WO 00/01846; Mello and Fire, International PCT Publication No. WO 01/29058; Deschamps-Depaillette, International PCT Publication No. WO 99/07409; and Li et al., International PCT Publication No. WO

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00/44914. As used herein, siRNA molecules need not be limited to those molecules containing only RNA, but further encompasses chemically modified nucleotides and non-nucleotides.

Nucleic acid molecules that modulate expression of Ras-specific RNAs represent a therapeutic approach to treat cancer, including, but not limited to colorectal cancer, bladder cancer, lung cancer, pancreatic cancer, breast cancer, or prostate cancer and any other cancer, disease or condition that responds to the modulation of Ras expression.

Nucleic acid molecules that modulate expression of HIV-specific RNAs also represent a therapeutic approach to treat acquired immunodeficiency syndrome (AIDS) and/or any other disease, condition, or syndrome which respond to the modulation of HIV expression.

Nucleic acid molecules that modulate expression of HER2-specific RNAs represent a therapeutic approach to treat cancer, including, but not limited to breast and ovarian cancer and any other cancer, disease or condition that responds to the modulation of HER2 expression.

In one embodiment of the inventions described herein, the enzymatic nucleic acid 15 molecule is formed in a hammerhead or hairpin motif, but can also be formed in the motif of a hepatitis delta virus, group I intron, group II intron or RNase P RNA (in association with an RNA guide sequence), Neurospora VS RNA, DNAzymes, NCH cleaving motifs, or Gcleavers. Examples of such hammerhead motifs are described by Dreyfus, supra, Rossi et al., 1992, AIDS Research and Human Retroviruses 8, 183; of hairpin motifs by Hampel et al., 20 EP0360257, Hampel and Tritz, 1989 Biochemistry 28, 4929, Feldstein et al., 1989, Gene 82, 53, Haseloff and Gerlach, 1989, Gene, 82, 43, and Hampel et al., 1990 Nucleic Acids Res. 18, 299; Chowrira & McSwiggen, US. Patent No. 5,631,359; of the hepatitis delta virus motif is described by Perrotta and Been, 1992 Biochemistry 31, 16; of the RNase P motif by Guerrier-Takada et al., 1983 Cell 35, 849; Forster and Altman, 1990, Science 249, 783; Li and Altman, 25 1996, Nucleic Acids Res. 24, 835; Neurospora VS RNA ribozyme motif is described by Collins (Saville and Collins, 1990 Cell 61, 685-696; Saville and Collins, 1991 Proc. Natl. Acad. Sci. USA 88, 8826-8830; Collins and Olive, 1993 Biochemistry 32, 2795-2799; Guo and Collins, 1995, EMBO. J. 14, 363); Group II introns are described by Griffin et al., 1995, Chem. Biol. 2, 761; Michels and Pyle, 1995, Biochemistry 34, 2965; Pyle et al., International 30 PCT Publication No. WO 96/22689; of the Group I intron by Cech et al., U.S. Patent 4,987,071 and of DNAzymes by Usman et al., International PCT Publication No. WO 95/11304; Chartrand et al., 1995, NAR 23, 4092; Breaker et al., 1995, Chem. Bio. 2, 655; Santoro et al., 1997, PNAS 94, 4262, and Beigelman et al., International PCT publication No.

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WO 99/55857. NCH cleaving motifs are described in Ludwig & Sproat, International PCT Publication No. WO 98/58058; and G-cleavers are described in Kore et al., 1998, Nucleic Acids Research 26, 4116-4120 and Eckstein et al., International PCT Publication No. WO 99/16871. Additional motifs such as the Aptazyme (Breaker et al., WO 98/43993), Amberzyme (Class I motif; Figure 2; Beigelman et al., U.S. Serial No. 09/301,511) and Zinzyme (Figure 3) (Beigelman et al., U.S. Serial No. 09/301,511), all included by reference herein including drawings, can also be used in the present invention. These specific motifs or configurations are not limiting in the invention and those skilled in the art will recognize that all that is important in an enzymatic nucleic acid molecule of this invention is that it has a specific substrate binding site which is complementary to one or more of the target gene RNA regions, and that it have nucleotide sequences within or surrounding that substrate binding site which impart an RNA cleaving activity to the molecule (Cech et al., U.S. Patent No. 4,987,071).

In one embodiment of the present invention, a nucleic acid molecule of the instant 15 invention can be between about 10 and 100 nucleotides in length. Exemplary enzymatic nucleic acid molecules of the invention are shown in the Tables herein. For example, enzymatic nucleic acid molecules of the invention are preferably between about 15 and 50 nucleotides in length, more preferably between about 25 and 40 nucleotides in length, e.g., 34, 36, or 38 nucleotides in length (for example see Jarvis et al., 1996, J. Biol. Chem., 271, 20 29107-29112). Exemplary DNAzymes of the invention are preferably between about 15 and 40 nucleotides in length, more preferably between about 25 and 35 nucleotides in length, e.g., 29, 30, 31, or 32 nucleotides in length (see for example Santoro et al., 1998, Biochemistry, 37, 13330-13342; Chartrand et al., 1995, Nucleic Acids Research, 23, 4092-4096). Exemplary antisense molecules of the invention are preferably between about 15 and 75 25 nucleotides in length, more preferably between about 20 and 35 nucleotides in length, e.g., 25, 26, 27, or 28 nucleotides in length (see for example Woolf et al., 1992, PNAS., 89, 7305-7309; Milner et al., 1997, Nature Biotechnology, 15, 537-541). Exemplary triplex forming oligonucleotide molecules of the invention are preferably between about 10 and 40 nucleotides in length, more preferably between about 12 and 25 nucleotides in length, e.g., 30 18, 19, 20, or 21 nucleotides in length (see for example Maher et al., 1990, Biochemistry, 29, 8820-8826; Strobel and Dervan, 1990, Science, 249, 73-75). Those skilled in the art will recognize that all that is required is for a nucleic acid molecule to be of length and conformation sufficient and suitable for the nucleic acid molecule to interact with its target and/or catalyze a reaction contemplated herein. The length of nucleic acid molecules of the 35 instant invention are not limiting within the general limits stated.

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Preferably, a nucleic acid molecule that modulates, for example, down-regulates Ras, HIV, and/or HER2 expression and/or activity, comprises between 12 and 100 bases complementary to a RNA molecule of Ras, HIV, and/or HER2 respectively. Even more preferably, a nucleic acid molecule that modulates Ras, HIV, and/or HER2 expression comprises between 14 and 24 bases complementary to a RNA molecule of Ras, HIV, and/or HER2 respectively.

The invention provides a method for producing a class of nucleic acid—based gene modulating agents that exhibit a high degree of specificity for RNA of a desired target. For example, an enzymatic nucleic acid molecule is preferably targeted to a highly conserved sequence region of target RNAs encoding Ras (and specifically a Ras gene) such that specific treatment of a disease or condition can be provided with either one or several nucleic acid molecules of the invention. Such nucleic acid molecules can be delivered exogenously to specific tissue or cellular targets as required. Alternatively, the nucleic acid molecules (e.g., enzymatic nucleic acid molecules, siRNA, antisense, and/or DNAzymes) can be expressed from DNA and/or RNA vectors that are delivered to specific cells.

As used herein "cell" is used in its usual biological sense, and does not refer to an entire multicellular organism. A cell can, for example, be *in vitro*, *e.g.*, in cell culture, or present in a multicellular organism, including, *e.g.*, birds, plants and mammals such as humans, cows, sheep, apes, monkeys, swine, dogs, and cats. The cell can be prokaryotic (*e.g.*, bacterial cell) or eukaryotic (*e.g.*, mammalian or plant cell).

By "Ras proteins" is meant, a peptide or protein comprising Ras tyrosine kinase-type cell surface receptor or a peptide or protein encoded by a Ras gene, such as K-Ras, H-Ras, or N-Ras.

By "HIV proteins" is meant, a peptide or protein comprising a component of HIV or a peptide or protein encoded by a HIV gene.

By "HER2 proteins" is meant, a peptide or protein comprising HER2/ERB2/NEU tyrosine kinase-type cell surface receptor or a peptide or protein encoded by a HER2/ERB2/NEU gene.

By "highly conserved sequence region" is meant, a nucleotide sequence of one or more regions in a target gene that does not vary significantly from one generation to the other or from one biological system to the other.

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Nucleic acid-based modulators, including inhibitors, of Ras expression are useful for the prevention and/or treatment of cancer, including but not limited to breast cancer and ovarian cancer and any other disease or condition that respond to the modulation of Ras expression.

Nucleic acid-based inhibitors of HIV expression are useful for the prevention and/or treatment of acquired immunodeficiency disease (AIDS) and related diseases and conditions, including but not limited to Kaposi's sarcoma, lymphoma, cervical cancer, squamous cell carcinoma, cardiac myopathy, rheumatic diseases, and opportunistic infection, for example Pneumocystis carinii, Cytomegalovirus, Herpes simplex, Mycobacteria, Cryptococcus, Toxoplasma, Progressive multifocal leucoencepalopathy (Papovavirus), Mycobacteria, Aspergillus, Cryptococcus, Candida, Cryptosporidium, Isospora belli, Microsporidia and any other disease or condition which respond to the modulation of HIV expression.

Nucleic acid-based inhibitors of HER2 expression are useful for the prevention and/or treatment of cancer, including but not limited to breast cancer and ovarian cancer and any other disease or condition that respond to the modulation of HER2 expression.

By "related" is meant that the reduction of RAS, HIV, or HER2 expression (specifically RAS, HIV, or HER2 genes respectively) RNA levels and thus reduction in the level of the respective protein relieves, to some extent, the symptoms of the disease or condition.

The nucleic acid-based molecules of the invention can be added directly, or can be complexed with cationic lipids, packaged within liposomes, or otherwise delivered to target cells or tissues. The nucleic acid or nucleic acid complexes can be locally administered to relevant tissues ex vivo, or in vivo through injection or infusion pump, with or without their incorporation in biopolymers. In certain embodiments, the enzymatic nucleic acid molecules comprise sequences that are complementary to the substrate sequences in the Tables herein.

Examples of such enzymatic nucleic acid molecules also are shown in the Tables herein. Examples of such enzymatic nucleic acid molecules consist essentially of sequences defined in these tables.

In another embodiment, the invention features siRNA, antisense nucleic acid molecules and 2-5A chimeras comprising sequences complementary to the substrate sequences shown in the Tables herein. Such nucleic acid molecules can comprise sequences as shown for the binding arms of the enzymatic nucleic acid molecules in the Tables. Similarly, triplex molecules can be targeted to corresponding DNA target regions; such molecules can comprise the DNA equivalent of a target sequence or a sequence complementary to the specified target

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(substrate) sequence. Typically, antisense molecules are complementary to a target sequence along a single contiguous sequence of the antisense molecule. However, in certain embodiments, an antisense molecule can bind to a substrate such that the substrate molecule forms a loop, and/or an antisense molecule can bind such that the antisense molecule forms a loop. Thus, the antisense molecule can be complementary to two or more non-contiguous substrate sequences. In addition, two or more non-contiguous sequence portions of an antisense molecule can be complementary to a target sequence.

By "consists essentially of" is meant that the active nucleic acid molecule of the invention, for example, an enzymatic nucleic acid molecule, contains an enzymatic center or core equivalent to those in the examples, and binding arms able to bind RNA such that cleavage at the target site occurs. Other sequences can be present that do not interfere with such cleavage. Thus, a core region of an enzymatic nucleic acid molecule can, for example, include one or more loop, stem-loop structure, or linker that does not prevent enzymatic activity. Thus, various regions in the sequences in the Tables can be such a loop, stem-loop, nucleotide linker, and/or non-nucleotide linker and can be represented generally as sequence "X". The nucleic acid molecules of the instant invention, such as Hammerhead, Inozyme, G-cleaver, amberzyme, zinzyme, DNAzyme, antisense, 2-5A antisense, triplex forming nucleic acid, and decoy nucleic acids, can contain other sequences or non-nucleotide linkers that do not interfere with the function of the nucleic acid molecule.

Sequence X can be a linker of ≥ 2 nucleotides in length, preferably 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 26, 30, where the nucleotides can preferably be internally base-paired to form a stem of preferably ≥ 2 base pairs. Alternatively or in addition, sequence X can be a non-nucleotide linker. In yet another embodiment, the nucleotide linker X can be a nucleic acid aptamer, such as an ATP aptamer, Ras Rev aptamer (RRE), Ras Tat aptamer (TAR) and others (for a review see Gold et al., 1995, Annu. Rev. Biochem., 64, 763; and Szostak & Ellington, 1993, in The RNA World, ed. Gesteland and Atkins, pp. 511, CSH Laboratory Press). A "nucleic acid aptamer" as used herein is meant to indicate a nucleic acid sequence capable of interacting with a ligand. The ligand can be any natural or a synthetic molecule, including but not limited to a resin, metabolites, nucleosides, nucleotides, drugs, toxins, transition state analogs, peptides, lipids, proteins, amino acids, nucleic acid molecules, hormones, carbohydrates, receptors, cells, viruses, bacteria and others.

In yet another embodiment, a non-nucleotide linker X is as defined herein. Non-nucleotides as can include abasic nucleotide, polyether, polyamine, polyamide, peptide, carbohydrate, lipid, or polyhydrocarbon compounds. Specific examples include those

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described by Seela and Kaiser, Nucleic Acids Res. 1990, 18:6353 and Nucleic Acids Res. 1987, 15:3113; Cload and Schepartz, J. Am. Chem. Soc. 1991, 113:6324; Richardson and Schepartz, J. Am. Chem. Soc. 1991, 113:5109; Ma et al., Nucleic Acids Res. 1993, 21:2585 and Biochemistry 1993, 32:1751; Durand et al., Nucleic Acids Res. 1990, 18:6353; McCurdy et al., Nucleosides & Nucleotides 1991, 10:287; Jschke et al., Tetrahedron Lett. 1993, 34:301; Ono et al., Biochemistry 1991, 30:9914; Arnold et al., International Publication No. WO 89/02439; Usman et al., International Publication No. WO 95/06731; Dudycz et al., International Publication No. WO 95/11910 and Ferentz and Verdine, J. Am. Chem. Soc. 1991, 113:4000, all hereby incorporated by reference herein. A "non-nucleotide" further means any group or compound that can be incorporated into a nucleic acid chain in the place of one or more nucleotide units, including either sugar and/or phosphate substitutions, and allows the remaining bases to exhibit their enzymatic activity. The group or compound can be abasic in that it does not contain a commonly recognized nucleotide base, such as adenosine, guanine, cytosine, uracil or thymine. Thus, in a preferred embodiment, the invention features an enzymatic nucleic acid molecule having one or more non-nucleotide moieties, and having enzymatic activity to cleave an RNA or DNA molecule.

In another aspect of the invention, enzymatic nucleic acid molecules, siRNA molecules or antisense molecules that interact with target RNA molecules and modulate gene expression activity are expressed from transcription units inserted into DNA or RNA vectors. The recombinant vectors are preferably DNA plasmids or viral vectors. Enzymatic nucleic acid molecule or antisense expressing viral vectors can be constructed based on, but not limited to, adeno-associated virus, retrovirus, adenovirus, or alphavirus as well as others known in the art. Preferably, recombinant vectors capable of expressing enzymatic nucleic acid molecules or antisense are delivered as described below, and persist in target cells. Alternatively, viral vectors can be used that provide for transient expression of enzymatic nucleic acid molecules or antisense. Such vectors can be repeatedly administered as necessary. Once expressed, the enzymatic nucleic acid molecules or antisense bind to target RNA and modulate its function or expression. Delivery of enzymatic nucleic acid molecule or antisense expressing vectors can be systemic, such as by intravenous or intramuscular administration, by administration to target cells ex-planted from the patient followed by reintroduction into the patient, or by any other means that allows for introduction into a desired target cell. Antisense DNA and DNAzymes can be expressed via the use of a single stranded DNA intracellular expression vector.

By "vectors" is meant any nucleic acid- and/or viral-based technique used to deliver a desired nucleic acid.

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By "subject" or "patient" is meant an organism that is a donor or recipient of explanted cells or the cells of the organism. "Subject" or "patient" also refers to an organism to which the nucleic acid molecules of the invention can be administered. Preferably, a subject or patient is a mammal or mammalian cells. More preferably, a subject or patient is a human or human cells.

By "enhanced enzymatic activity" is meant to include activity measured in cells and/or in vivo where the activity is a reflection of both the catalytic activity and the stability of the nucleic acid molecules of the invention. In this invention, the product of these properties can be increased in vivo compared to an all RNA enzymatic nucleic acid or all DNA enzyme, for example, with a nucleic acid molecule comprising chemical modifications. In some cases, the activity or stability of the nucleic acid molecule can be decreased (i.e., less than ten-fold), but the overall activity of the nucleic acid molecule is enhanced, in vivo.

Nucleic acid molecules of the instant invention, individually, or in combination or in conjunction with other drugs, can be used to treat diseases or conditions discussed above. For example, to treat a disease or condition associated with the levels of Ras, HIV, or HER2, a subject can be treated, or other appropriate cells can be treated, as is evident to those skilled in the art, individually or in combination with one or more drugs under conditions suitable for the treatment.

In a further embodiment, the described molecules, such as antisense, siRNA, or enzymatic nucleic acid molecules, can be used in combination with other known treatments to treat conditions or diseases discussed above. For example, the described molecules can be used in combination with one or more known therapeutic agents to treat cancer, for example colorectal cancer, bladder cancer, lung cancer, pancreatic cancer, breast cancer, or prostate cancer, and any other disease or condition that respond to the modulation of Ras expression.

In another embodiment, the invention features nucleic acid-based inhibitors (e.g., enzymatic nucleic acid molecules, (including DNAzymes), siRNA and methods for their use to down regulate or inhibit the expression of genes (e.g., Ras genes) capable of progression and/or maintenance of cancer and/or other disease states that respond to the modulation of Ras expression.

In a further embodiment, the described molecules, such as antisense, siRNA, or enzymatic nucleic acids, can be used in combination with other known treatments to treat conditions or diseases discussed above. For example, the described molecules can be used in combination with one or more known therapeutic agents to treat acquired immunodeficiency

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disease (AIDS) and related diseases and conditions, including but not limited to Kaposi's sarcoma, lymphoma, cervical cancer, squamous cell carcinoma, cardiac myopathy, rheumatic diseases, and opportunistic infection, for example Pneumocystis carinii, Cytomegalovirus, Herpes simplex, Mycobacteria, Cryptococcus, Toxoplasma, Progressive multifocal leucoencepalopathy (Papovavirus), Mycobacteria, Aspergillus, Cryptococcus, Candida, Cryptosporidium, Isospora belli, Microsporidia and any other disease or condition which respond to the modulation of HIV expression.

Nucleic acid molecules of the instant invention, individually, or in combination or in conjunction with other drugs, can be used to treat diseases or conditions discussed above. For example, to treat a disease or condition associated with the levels of HER2, a patient can be treated, or other appropriate cells can be treated, as is evident to those skilled in the art, individually or in combination with one or more drugs under conditions suitable for the treatment.

In a further embodiment, the described molecules, such as antisense, siRNA or enzymatic nucleic acid molecules, can be used in combination with other known treatments to treat conditions or diseases discussed above. For example, the described molecules can be used in combination with one or more known therapeutic agents to treat cancer, for example ovarian cancer and/or breast cancer, and any other disease or condition that respond to the modulation of HER2 expression.

In another embodiment, the invention features nucleic acid-based inhibitors (e.g., enzymatic nucleic acid molecules, (including ribozymes, antisense nucleic acids, 2-5A antisense chimeras, triplex DNA, antisense nucleic acids containing RNA cleaving chemical groups), siRNA and methods for their use to down regulate or inhibit the expression of genes (e.g., HER2 genes) capable of progression and/or maintenance of cancer and/or other disease states that respond to the modulation of HER2 expression.

By "comprising" is meant including, but not limited to, whatever follows the word "comprising". Thus, use of the term "comprising" indicates that the listed elements are required or mandatory, but that other elements are optional and may or may not be present. By "consisting of" is meant including, and limited to, whatever follows the phrase "consisting of".

Other features and advantages of the invention will be apparent from the following description of the preferred embodiments thereof, and from the claims.

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## Mechanism of action of Nucleic Acid Molecules of the Invention as is Know in the Art

Antisense: Antisense molecules can be modified or unmodified RNA, DNA, or mixed polymer oligonucleotides and primarily function by specifically binding to matching sequences resulting in inhibition of peptide synthesis (Wu-Pong, Nov 1994, *BioPharm*, 20-33). The antisense oligonucleotide binds to target RNA by Watson Crick base-pairing and blocks gene expression by preventing ribosomal translation of the bound sequences either by steric blocking or by activating RNase H enzyme. Antisense molecules can also alter protein synthesis by interfering with RNA processing or transport from the nucleus into the cytoplasm (Mukhopadhyay & Roth, 1996, *Crit. Rev. in Oncogenesis* 7, 151-190).

In addition, binding of single stranded DNA to RNA can result in nuclease degradation of the heteroduplex (Wu-Pong, *supra*; Crooke, *supra*). Backbone modified DNA chemistry which have been thus far been shown to act as substrates for RNase H are phosphorothioates, phosphorodithioates, and borontrifluoridates. In addition, 2'-arabino and 2'-fluoro arabinocontaining oligos can also activate RNase H activity.

A number of antisense molecules have been described that utilize novel configurations of chemically modified nucleotides, secondary structure, and/or RNase H substrate domains (Woolf et al., International PCT Publication No. WO 98/13526; Thompson et al., International PCT Publication No. WO 99/54459; Hartmann et al., USSN 60/101,174, filed on September 21, 1998). All of these references are incorporated by reference herein in their entirety.

In addition, antisense deoxyoligoribonucleotides can be used to target RNA by means of DNA-RNA interactions, thereby activating RNase H, which digests the target RNA in the duplex. Antisense DNA can be expressed via the use of a single stranded DNA intracellular expression vector or equivalents and variations thereof.

RNA interference: RNA interference refers to the process of sequence specific post transcriptional gene silencing in animals mediated by short interfering RNAs (siRNA) (Fire et al., 1998, Nature, 391, 806). The corresponding process in plants is commonly referred to as post transcriptional gene silencing or RNA silencing and is also referred to as quelling in fungi. The process of post transcriptional gene silencing is thought to be an evolutionarily conserved cellular defense mechanism used to prevent the expression of foreign genes which is commonly shared by diverse flora and phyla (Fire et al., 1999, Trends Genet., 15, 358). Such protection from foreign gene expression may have evolved in response to the production of double stranded RNAs (dsRNA) derived from viral infection or the random integration of

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transposon elements into a host genome via a cellular response that specifically destroys homologous single stranded RNA or viral genomic RNA. The presence of dsRNA in cells triggers the RNAi response though a mechanism that has yet to be fully characterized. This mechanism appears to be different from the interferon response that results from dsRNA mediated activation of protein kinase PKR and 2',5'-oligoadenylate synthetase resulting in non-specific cleavage of mRNA by ribonuclease L.

The presence of long dsRNAs in cells stimulates the activity of a ribonuclease III enzyme referred to as dicer. Dicer is involved in the processing of the dsRNA into short pieces of dsRNA known as short interfering RNAs (siRNA) (Berstein et al., 2001, Nature, 409, 363). Short interfering RNAs derived from dicer activity are typically about 21-23 nucleotides in length and comprise about 19 base pair duplexes. Dicer has also been implicated in the excision of 21 and 22 nucleotide small temporal RNAs (stRNA) from precursor RNA of conserved structure that are implicated in translational control (Hutvagner et al., 2001, Science, 293, 834). The RNAi response also features an endonuclease complex containing a siRNA, commonly referred to as an RNA-induced silencing complex (RISC), which mediates cleavage of single stranded RNA having sequence homologous to the siRNA. Cleavage of the target RNA takes place in the middle of the region complementary to the guide sequence of the siRNA duplex (Elbashir et al., 2001, Genes Dev., 15, 188).

Short interfering RNA mediated RNAi has been studied in a variety of systems. Fire et al., 1998, Nature, 391, 806, were the first to observe RNAi in C. Elegans. Wianny and Goetz, 1999, Nature Cell Biol., 2, 70, describes RNAi mediated by dsRNA in mouse embryos. Hammond et al., 2000, Nature, 404, 293, describe RNAi in Drosophila cells transfected with dsRNA. Elbashir et al., 2001, Nature, 411, 494, describe RNAi induced by introduction of duplexes of synthetic 21-nucleotide RNAs in cultured mammalian cells including human embryonic kidney and HeLa cells. Recent work in Drosophila embryonic lysates has revealed certain requirements for siRNA length, structure, chemical composition, and sequence that are essential to mediate efficient RNAi activity. These studies have shown that 21 nucleotide siRNA duplexes are most active when containing two nucleotide 3'overhangs. Furthermore, substitution of one or both siRNA strands with 2'-deoxy or 2'-Omethyl nucleotides abolishes RNAi activity, whereas substitution of 3'-terminal siRNA nucleotides with deoxy nucleotides was shown to be tolerated. Mismatch sequences in the center of the siRNA duplex were also shown to abolish RNAi activity. In addition, these studies also indicate that the position of the cleavage site in the target RNA is defined by the 5'-end of the siRNA guide sequence rather than the 3'-end (Elbashir et al., 2001, EMBO J., 20, 6877). Other studies have indicated that a 5'-phosphate on the target-complementary strand of a siRNA duplex is required for siRNA activity and that ATP is utilized to maintain

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the 5'-phosphate moiety on the siRNA (Nykanen et al., 2001, Cell, 107, 309), however siRNA molecules lacking a 5'-phosphate are active when introduced exogenously, suggesting that 5'-phosphorylation of siRNA constructs may occur in vivo.

Enzymatic Nucleic Acid: Several varieties of naturally-occurring enzymatic RNAs are presently known. In addition, several *in vitro* selection (evolution) strategies (Orgel, 1979, *Proc. R. Soc. London*, B 205, 435) have been used to evolve new nucleic acid catalysts capable of catalyzing cleavage and ligation of phosphodiester linkages (Joyce, 1989, *Gene*, 82, 83-87; Beaudry *et al.*, 1992, *Science* 257, 635-641; Joyce, 1992, *Scientific American* 267, 90-97; Breaker *et al.*, 1994, *TIBTECH* 12, 268; Bartel *et al.*,1993, *Science* 261:1411-1418; Szostak, 1993, *TIBS* 17, 89-93; Kumar *et al.*, 1995, *FASEB J.*, 9, 1183; Breaker, 1996, *Curr. Op. Biotech.*, 7, 442; Santoro *et al.*, 1997, *Proc. Natl. Acad. Sci.*, 94, 4262; Tang *et al.*, 1997, *RNA* 3, 914; Nakamaye & Eckstein, 1994, *supra*; Long & Uhlenbeck, 1994, *supra*; Ishizaka *et al.*, 1995, *supra*; Vaish *et al.*, 1997, *Biochemistry* 36, 6495; all of these are incorporated by reference herein). Each can catalyze a series of reactions including the hydrolysis of phosphodiester bonds in *trans* (and thus can cleave other RNA molecules) under physiological conditions.

Nucleic acid molecules of this invention can modulate, e.g., down-regulate, Ras protein expression and can be used to treat disease or diagnose disease associated with the levels of Ras, HIV and/or HER2. Enzymatic nucleic acid sequences targeting Ras, HIV and/or HER2 RNA and sequences that can be targeted with nucleic acid molecules of the invention to down-regulate Ras expression are shown in the Tables herein.

The enzymatic nature of an enzymatic nucleic acid molecule allows the concentration of enzymatic nucleic acid molecule necessary to affect a therapeutic treatment to be lower than a nucleic acid molecule lacking enzymatic activity. This reflects the ability of the enzymatic nucleic acid molecule to act enzymatically. Thus, a single enzymatic nucleic acid molecule is able to cleave many molecules of target RNA. In addition, the enzymatic nucleic acid molecule is a highly specific inhibitor, with the specificity of inhibition depending not only on the base-pairing mechanism of binding to the target RNA, but also on the mechanism of target RNA cleavage. Single mismatches, or base-substitutions, near the site of cleavage can be chosen to completely eliminate catalytic activity of a enzymatic nucleic acid molecule.

Nucleic acid molecules having an endonuclease enzymatic activity are able to repeatedly cleave other separate RNA molecules in a nucleotide base sequence-specific manner. With proper design and construction, such enzymatic nucleic acid molecules can be targeted to virtually any RNA transcript, and achieve efficient cleavage *in vitro* (Zaug *et al.*,

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324, Nature 429 1986; Uhlenbeck, 1987 Nature 328, 596; Kim et al., 84 Proc. Natl. Acad. Sci. USA 8788, 1987; Dreyfus, 1988, Einstein Quart. J. Bio. Med., 6, 92; Haseloff and Gerlach, 334 Nature 585, 1988; Cech, 260 JAMA 3030, 1988; and Jefferies et al., 17 Nucleic Acids Research 1371, 1989; Santoro et al., 1997 supra).

Because of their sequence specificity, trans-cleaving enzymatic nucleic acid molecules can be used as therapeutic agents for human disease (Usman & McSwiggen, 1995 Ann. Rep. Med. Chem. 30, 285-294; Christoffersen and Marr, 1995 J. Med. Chem. 38, 2023-2037). Enzymatic nucleic acid molecules can be designed to cleave specific RNA targets within the background of cellular RNA. Such a cleavage event renders the RNA non-functional and abrogates protein expression from that RNA. In this manner, synthesis of a protein associated with a disease state can be selectively inhibited (Warashina et al., 1999, Chemistry and Biology, 6, 237-250).

Enzymatic nucleic acid molecules of the invention that are allosterically regulated ("allozymes") can be used to modulate, including down-regulate, Ras, HIV and/or HER2 expression. These allosteric enzymatic nucleic acids or allozymes (see for example George et al., US Patent Nos. 5,834,186 and 5,741,679, Shih et al., US Patent No. 5,589,332, Nathan et al., US Patent No 5,871,914, Nathan and Ellington, International PCT publication No. WO 00/24931, Breaker et al., International PCT Publication Nos. WO 00/26226 and 98/27104, and Sullenger et al., International PCT publication No. WO 99/29842) are designed to respond to a signaling agent, for example, mutant Ras, HIV and/or HER2 protein, wild-type Ras, HIV and/or HER2 protein, mutant Ras, HIV and/or HER2 RNA, wild-type Ras, HIV and/or HER2 RNA, other proteins and/or RNAs involved in Ras, HIV and/or HER2 activity, compounds, metals, polymers, molecules and/or drugs that are targeted to Ras, HIV and/or HER2 expressing cells etc., which, in turn, modulate the activity of the enzymatic nucleic acid molecule. In response to interaction with a predetermined signaling agent, the activity of the allosteric enzymatic nucleic acid molecule is activated or inhibited such that the expression of a particular target is selectively regulated, including down-regulated. The target can comprise wild-type Ras, HIV and/or HER2, mutant Ras, HIV and/or HER2, a component of Ras, HIV and/or HER2, and/or a predetermined cellular component that modulates Ras, HIV and/or HER2 activity. For example, allosteric enzymatic nucleic acid molecules that are activated by interaction with a RNA encoding Ras, HIV and/or HER2 protein can be used as therapeutic agents in vivo. The presence of RNA encoding the Ras, HIV and/or HER2 protein activates the allosteric enzymatic nucleic acid molecule that subsequently cleaves the RNA encoding Ras, HIV and/or HER2 protein, resulting in the inhibition of Ras, HIV and/or

HER2 protein expression. In this manner, cells that express the Ras, HIV and/or HER2 protein are selectively targeted.

In another non-limiting example, an allozyme can be activated by a Ras, HIV and/or HER2 protein, peptide, or mutant polypeptide that causes the allozyme to inhibit the expression of Ras, HIV and/or HER2 gene, by, for example, cleaving RNA encoded by Ras, HIV and/or HER2 gene. In this non-limiting example, the allozyme acts as a decoy to inhibit the function of Ras, HIV and/or HER2 and also inhibit the expression of Ras, HIV and/or HER2 once activated by the Ras, HIV and/or HER2 protein.

# Target sites

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Targets for useful enzymatic nucleic acid molecules and antisense nucleic acids can be determined as disclosed in Draper et al., WO 93/23569; Sullivan et al., WO 93/23057; Thompson et al., WO 94/02595; Draper et al., WO 95/04818; McSwiggen et al., US Patent No. 5,525,468, and hereby incorporated by reference herein in totality. Other examples include the following PCT applications, which concern inactivation of expression of diseaserelated genes: WO 95/23225, WO 95/13380, WO 94/02595, incorporated by reference herein. Rather than repeat the guidance provided in those documents here, below are provided specific non-limiting examples of such methods. Enzymatic nucleic acid molecules to such targets are designed as described in the above applications and synthesized to be tested in vitro and in vivo, as also described. The sequences of human K-Ras, H-Ras, HIV-1 and HER2 RNAs were screened for optimal enzymatic nucleic acid target sites using a computer-folding algorithm. Nucleic acid molecule binding/cleavage sites were identified. These sites are shown in the Tables (all sequences are 5' to 3' in the tables). The nucleotide base position is noted in the Tables as that site to be cleaved by the designated type of enzymatic nucleic acid molecule. Human sequences can be screened and enzymatic nucleic acid molecule and/or antisense thereafter designed, as discussed in Stinchcomb et al., WO 95/23225. In addition, mouse targeted nucleic acid molecules can be used to test efficacy of action of the enzymatic nucleic acid molecule, siRNA and/or antisense prior to testing in humans.

In addition, enzymatic nucleic acid, siRNA, and antisense nucleic acid molecule binding/cleavage sites were identified. The nucleic acid molecules are individually analyzed by computer folding (Jaeger et al., 1989 Proc. Natl. Acad. Sci. USA, 86, 7706) to assess whether the sequences fold into the appropriate secondary structure. Those nucleic acid molecules with unfavorable intramolecular interactions, such as between, for example the binding arms and the catalytic core of an enzymatic nucleic acid, are eliminated from consideration. Varying binding arm lengths can be chosen to optimize activity.

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Antisense, hammerhead, DNAzyme, NCH, amberzyme, zinzyme or G-Cleaver enzymatic nucleic acid molecule, siRNA, and antisense nucleic acid binding/cleavage sites were identified and were designed to anneal to various sites in the RNA target. The enzymatic nucleic acid binding arms or siRNA and antisense nucleic acid sequences are complementary to the target site sequences described above. The nucleic acid molecules are chemically synthesized. The method of synthesis used follows the procedure for normal DNA/RNA synthesis as described below and in Usman et al., 1987 J. Am. Chem. Soc., 109, 7845; Scaringe et al., 1990 Nucleic Acids Res., 18, 5433; and Wincott et al., 1995 Nucleic Acids Res. 23, 2677-2684; Caruthers et al., 1992, Methods in Enzymology 211,3-19.

#### Synthesis of Nucleic acid Molecules

Synthesis of nucleic acids greater than 100 nucleotides in length can be difficult using automated methods, and the therapeutic cost of such molecules can be prohibitive. In this invention, small nucleic acid motifs ("small" refers to nucleic acid motifs less than about 100 nucleotides in length, preferably less than about 80 nucleotides in length, and more preferably less than about 50 nucleotides in length; e.g., DNAzymes) are preferably used for exogenous delivery. The simple structure of these molecules increases the ability of the nucleic acid to invade targeted regions of RNA structure. Exemplary molecules of the instant invention are chemically synthesized as described herein, and others can similarly be synthesized.

Oligonucleotides (e.g., DNAzymes, antisense) are synthesized using protocols known in the art as described in Caruthers et al., 1992, Methods in Enzymology 211, 3-19, Thompson et al., International PCT Publication No. WO 99/54459, Wincott et al., 1995, Nucleic Acids Res. 23, 2677-2684, Wincott et al., 1997, Methods Mol. Bio., 74, 59, Brennan et al., 1998, Biotechnol Bioeng., 61, 33-45, and Brennan, US patent No. 6,001,311. All of these references are incorporated herein by reference. The synthesis of oligonucleotides makes use of common nucleic acid protecting and coupling groups, such as dimethoxytrityl at the 5'-end, and phosphoramidites at the 3'-end. In a non-limiting example, small scale syntheses are conducted on a 394 Applied Biosystems, Inc. synthesizer using a 0.2 µmol scale protocol with a 2.5 min coupling step for 2'-O-methylated nucleotides and a 45 sec coupling step for 2'-deoxy nucleotides. Table I outlines the amounts and the contact times of the reagents used in the synthesis cycle. Alternatively, syntheses at the 0.2 µmol scale can be performed on a 96-well plate synthesizer, such as the instrument produced by Protogene (Palo Alto, CA) with minimal modification to the cycle. A 33-fold excess (60  $\mu$ L of 0.11 M = 6.6  $\mu$ mol) of 2'-O-methyl phosphoramidite and a 105-fold excess of S-ethyl tetrazole (60  $\mu$ L of 0.25 M = 15 µmol) can be used in each coupling cycle of 2'-O-methyl residues relative to polymer-

bound 5'-hydroxyl. A 22-fold excess (40 μL of 0.11 M = 4.4 μmol) of deoxy phosphoramidite and a 70-fold excess of S-ethyl tetrazole (40 μL of 0.25 M = 10 μmol) can be used in each coupling cycle of deoxy residues relative to polymer-bound 5'-hydroxyl. Average coupling yields on the 394 Applied Biosystems, Inc. synthesizer, determined by colorimetric quantitation of the trityl fractions, are typically 97.5-99%. Other oligonucleotide synthesis reagents for the 394 Applied Biosystems, Inc. synthesizer include; detritylation solution is 3% TCA in methylene chloride (ABI); capping is performed with 16% N-methyl imidazole in THF (ABI) and 10% acetic anhydride/10% 2,6-lutidine in THF (ABI); and oxidation solution is 16.9 mM I<sub>2</sub>, 49 mM pyridine, 9% water in THF (PERSEPTIVE<sup>TM</sup>). Burdick & Jackson Synthesis Grade acetonitrile is used directly from the reagent bottle. S-Ethyltetrazole solution (0.25 M in acetonitrile) is made up from the solid obtained from American International Chemical, Inc. Alternately, for the introduction of phosphorothioate linkages, Beaucage reagent (3H-1,2-Benzodithiol-3-one 1,1-dioxide, 0.05 M in acetonitrile) is used.

Deprotection of the DNAzymes is performed as follows: the polymer-bound trityl-on oligoribonucleotide is transferred to a 4 mL glass screw top vial and suspended in a solution of 40% aq. methylamine (1 mL) at 65 °C for 10 min. After cooling to -20 °C, the supernatant is removed from the polymer support. The support is washed three times with 1.0 mL of EtOH:MeCN:H2O/3:1:1, vortexed and the supernatant is then added to the first supernatant. The combined supernatants, containing the oligoribonucleotide, are dried to a white powder.

The method of synthesis used for RNA and chemically modified RNA or DNA, including certain enzymatic nucleic acid molecules and siRNA molecules, follows the procedure as described in Usman *et al.*, 1987, *J. Am. Chem. Soc.*, 109, 7845; Scaringe *et al.*, 1990, *Nucleic Acids Res.*, 18, 5433; and Wincott *et al.*, 1995, *Nucleic Acids Res.* 23, 2677-2684 Wincott *et al.*, 1997, *Methods Mol. Bio.*, 74, 59, and makes use of common nucleic acid protecting and coupling groups, such as dimethoxytrityl at the 5'-end, and phosphoramidites at the 3'-end. In a non-limiting example, small scale syntheses are conducted on a 394 Applied Biosystems, Inc. synthesizer using a 0.2 μmol scale protocol with a 7.5 min coupling step for alkylsilyl protected nucleotides and a 2.5 min coupling step for 2'-O-methylated nucleotides. **Table I** outlines the amounts and the contact times of the reagents used in the synthesis cycle. Alternatively, syntheses at the 0.2 μmol scale can be done on a 96-well plate synthesizer, such as the instrument produced by Protogene (Palo Alto, CA) with minimal modification to the cycle. A 33-fold excess (60 μL of 0.11 M = 6.6 μmol) of 2'-O-methyl phosphoramidite and a 75-fold excess of S-ethyl tetrazole (60 μL of 0.25 M = 15 μmol) can be used in each coupling cycle of 2'-O-methyl residues relative to polymer-bound 5'-

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hydroxyl. A 66-fold excess (120 μL of 0.11 M = 13.2 μmol) of alkylsilyl (ribo) protected phosphoramidite and a 150-fold excess of S-ethyl tetrazole (120 μL of 0.25 M = 30 μmol) can be used in each coupling cycle of ribo residues relative to polymer-bound 5'-hydroxyl. Average coupling yields on the 394 Applied Biosystems, Inc. synthesizer, determined by colorimetric quantitation of the trityl fractions, are typically 97.5-99%. Other oligonucleotide synthesis reagents for the 394 Applied Biosystems, Inc. synthesizer include; detritylation solution is 3% TCA in methylene chloride (ABI); capping is performed with 16% N-methyl imidazole in THF (ABI) and 10% acetic anhydride/10% 2,6-lutidine in THF (ABI); oxidation solution is 16.9 mM I<sub>2</sub>, 49 mM pyridine, 9% water in THF (PERSEPTIVE<sup>TM</sup>). Burdick & Jackson Synthesis Grade acetonitrile is used directly from the reagent bottle. S-Ethyltetrazole solution (0.25 M in acetonitrile) is made up from the solid obtained from American International Chemical, Inc. Alternately, for the introduction of phosphorothioate linkages, Beaucage reagent (3H-1,2-Benzodithiol-3-one 1,1-dioxide 0.05 M in acetonitrile) is used.

Deprotection of the RNA is performed using either a two-pot or one-pot protocol. For the two-pot protocol, the polymer-bound trityl-on oligoribonucleotide is transferred to a 4 mL glass screw top vial and suspended in a solution of 40% aq. methylamine (1 mL) at 65 °C for 10 min. After cooling to -20 °C, the supernatant is removed from the polymer support. The support is washed three times with 1.0 mL of EtOH:MeCN:H2O/3:1:1, vortexed and the supernatant is then added to the first supernatant. The combined supernatants, containing the oligoribonucleotide, are dried to a white powder. The base deprotected oligoribonucleotide is resuspended in anhydrous TEA/HF/NMP solution (300 µL of a solution of 1.5 mL N-methylpyrrolidinone, 750 µL TEA and 1 mL TEA•3HF to provide a 1.4 M HF concentration) and heated to 65 °C. After 1.5 h, the oligomer is quenched with 1.5 M NH<sub>4</sub>HCO<sub>3</sub>.

Alternatively, for the one-pot protocol, the polymer-bound trityl-on oligoribonucleotide is transferred to a 4 mL glass screw top vial and suspended in a solution of 33% ethanolic methylamine/DMSO: 1/1 (0.8 mL) at 65 °C for 15 min. The vial is brought to r.t. TEA•3HF (0.1 mL) is added and the vial is heated at 65 °C for 15 min. The sample is cooled at -20 °C and then quenched with 1.5 M NH<sub>4</sub>HCO<sub>3</sub>.

For purification of the trityl-on oligomers, the quenched NH<sub>4</sub>HCO<sub>3</sub> solution is loaded onto a C-18 containing cartridge that had been prewashed with acetonitrile followed by 50 mM TEAA. After washing the loaded cartridge with water, the RNA is detritylated with 0.5% TFA for 13 min. The cartridge is then washed again with water, salt exchanged with 1 M NaCl and washed with water again. The oligonucleotide is then eluted with 30% acetonitrile.

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Inactive nucleic acid molecules or binding attenuated control (BAC) oligonucleotides can be synthesized by substituting one or more nucleotides in the nucleic acid molecule to inactivate the molecule and such molecules can serve as a negative control.

The average stepwise coupling yields are typically >98% (Wincott et al., 1995 Nucleic Acids Res. 23, 2677-2684). Those of ordinary skill in the art will recognize that the scale of synthesis can be adapted to be larger or smaller than the example described above including but not limited to 96 well format, all that is important is the ratio of chemicals used in the reaction.

Alternatively, the nucleic acid molecules of the present invention can be synthesized separately and joined together post-synthetically, for example by ligation (Moore et al., 1992, Science 256, 9923; Draper et al., International PCT publication No. WO 93/23569; Shabarova et al., 1991, Nucleic Acids Research 19, 4247; Bellon et al., 1997, Nucleosides & Nucleotides, 16, 951; Bellon et al., 1997, Bioconjugate Chem. 8, 204).

The nucleic acid molecules of the present invention can be modified extensively to enhance stability by modification with nuclease resistant groups, for example, 2'-amino, 2'-C-allyl, 2'-flouro, 2'-O-methyl, 2'-H (for a review see Usman and Cedergren, 1992, TIBS 17, 34; Usman et al., 1994, Nucleic Acids Symp. Ser. 31, 163). Enzymatic nucleic acid molecules are purified by gel electrophoresis using known methods or are purified by high pressure liquid chromatography (HPLC; See Wincott et al., Supra, the totality of which is hereby incorporated herein by reference) and are re-suspended in water.

The sequences of the nucleic acid molecules, including enzymatic nucleic acid molecules and antisense, that are chemically synthesized, are shown in the Tables herein. These sequences are representative only of many more such sequences where the enzymatic portion of the enzymatic nucleic acid molecule (all but the binding arms) is modified to affect activity. For example, the enzymatic nucleic acid sequences listed in the Tables can be formed of deoxyribonucleotides or other nucleotides or non-nucleotides. Such enzymatic nucleic acid molecules with enzymatic activity are equivalent to the enzymatic nucleic acid molecules described specifically in the Tables.

#### Optimizing Activity of the Nucleic Acid Molecule of the Invention.

Chemically synthesizing nucleic acid molecules with modifications (base, sugar and/or phosphate) that prevent their degradation by serum ribonucleases can increase their potency (see e.g., Eckstein et al., International Publication No. WO 92/07065; Perrault et al., 1990 Nature 344, 565; Pieken et al., 1991, Science 253, 314; Usman and Cedergren, 1992, Trends

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in Biochem. Sci. 17, 334; Usman et al., International Publication No. WO 93/15187; and Rossi et al., International Publication No. WO 91/03162; Sproat, US Patent No. 5,334,711; and Burgin et al., supra, all of which are hereby incorporated by reference in their entirety). All of the above references describe various chemical modifications that can be made to the base, phosphate and/or sugar moieties of the nucleic acid molecules described herein. Modifications which enhance their efficacy in cells, and removal of bases from nucleic acid molecules to shorten oligonucleotide synthesis times and reduce chemical requirements are desired.

There are several examples of sugar, base and phosphate modifications that can be 10 introduced into nucleic acid molecules with significant enhancement in their nuclease estability and efficacy. For example, oligonucleotides can be modified to enhance stability and/or enhance biological activity by modification with nuclease resistant groups, for example, 2'-amino, 2'-C-allyl, 2'-flouro, 2'-O-methyl, 2'-H, nucleotide base modifications (for a review see Usman and Cedergren, 1992, TIBS. 17, 34; Usman et al., 1994, Nucleic Acids 15 Symp. Ser. 31, 163; Burgin et al., 1996, Biochemistry, 35, 14090). Sugar modification of nucleic acid molecules are also known to increase efficacy (see Eckstein et al., International Publication PCT No. WO 92/07065; Perrault et al. Nature, 1990, 344, 565-568; Pieken et al. Science, 1991, 253, 314-317; Usman and Cedergren, Trends in Biochem. Sci., 1992, 17, 334-339; Usman et al. International Publication PCT No. WO 93/15187; Sproat, US Patent 20 No. 5,334,711 and Beigelman et al., 1995, J. Biol. Chem., 270, 25702; Beigelman et al., International PCT publication No. WO 97/26270; Beigelman et al., US Patent No. 5,716,824; Usman et al., US patent No. 5,627,053; Woolf et al., International PCT Publication No. WO 98/13526; Thompson et al., USSN 60/082,404 which was filed on April 20, 1998; Karpeisky et al., 1998, Tetrahedron Lett., 39, 1131; Earnshaw and Gait, 1998, Biopolymers (Nucleic acid Sciences), 48, 39-55; Verma and Eckstein, 1998, Annu. Rev. Biochem., 67, 99-134; and 25 Burlina et al., 1997, Bioorg. Med. Chem., 5, 1999-2010; all of the references are hereby incorporated in their totality by reference herein). The publications describe general methods and strategies to determine the location of incorporation of sugar, base and/or phosphate - modifications and the like into enzymatic nucleic acid molecules without inhibiting catalysis. 30 Similar modifications can be used as described herein to modify the nucleic acid molecules of the instant invention.

While chemical modification of oligonucleotide internucleotide linkages with phosphorothioate, phosphorothioate, and/or 5'-methylphosphonate linkages improves stability, excessive modifications can cause some toxicity. Therefore, when designing nucleic acid molecules, the amount of these internucleotide linkages should be minimized. The

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reduction in the concentration of these linkages can lower toxicity, resulting in increased efficacy and higher specificity of the therapeutic nucleic acid molecules.

Nucleic acid molecules having chemical modifications that maintain or enhance activity are provided. Such nucleic acid molecules are also generally more resistant to nucleases than unmodified nucleic acid molecules. Thus, the *in vitro* and/or *in vivo* activity should not be significantly lowered. Therapeutic nucleic acid molecules delivered exogenously are optimally stable within cells until translation of the target RNA has been inhibited long enough to reduce the levels of the undesirable protein. This period of time varies between hours to days, depending upon the disease state. Nucleic acid molecules are preferably resistant to nucleases in order to function as effective intracellular therapeutic agents. Improvements in the chemical synthesis of RNA and DNA (Wincott *et al.*, 1995 *Nucleic Acids Res.* 23, 2677; Caruthers *et al.*, 1992, *Methods in Enzymology* 211,3-19 (incorporated by reference herein)) have expanded the ability to modify nucleic acid molecules by introducing nucleotide modifications to enhance their nuclease stability as described above.

In one embodiment, nucleic acid molecules of the invention include one or more G-clamp nucleotides. A G-clamp nucleotide is a modified cytosine analog wherein modifications result in the ability to hydrogen bond both Watson-Crick and Hoogsteen faces of a complementary guanine within a duplex, see for example Lin and Matteucci, 1998, J. Am. Chem. Soc., 120, 8531-8532. A single G-clamp analog substation within an oligonucleotide can result in substantially enhanced helical thermal stability and mismatch discrimination when hybridized to complementary oligonucleotides. The inclusion of such nucleotides in nucleic acid molecules of the invention can enable both enhanced affinity and specificity to nucleic acid targets.

In another embodiment, the invention features conjugates and/or complexes of nucleic acid molecules targeting Ras genes such as K-Ras, H-Ras, and/or N-Ras. Compositions and conjugates are used to facilitate delivery of molecules into a biological system, such as cells. The conjugates provided by the instant invention can impart therapeutic activity by transferring therapeutic compounds across cellular membranes, altering the pharmacokinetics, and/or modulating the localization of nucleic acid molecules of the invention. The present invention encompasses the design and synthesis of novel agents for the delivery of molecules, including but not limited to, small molecules, lipids, phospholipids, nucleosides, nucleotides, nucleic acids, antibodies, toxins, negatively charged polymers and other polymers, for example proteins, peptides, hormones, carbohydrates, polyethylene glycols, or polyamines, across cellular membranes. In general, the transporters described are designed to be used

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either individually or as part of a multi-component system, with or without degradable linkers. These compounds are expected to improve delivery and/or localization of nucleic acid molecules of the invention into a number of cell types originating from different tissues, in the presence or absence of serum (see Sullenger and Cech, US 5,854,038). Conjugates of the molecules described herein can be attached to biologically active molecules via linkers that are biodegradable, such as biodegradable nucleic acid linker molecules.

The term "biodegradable nucleic acid linker molecule" as used herein, refers to a nucleic acid molecule that is designed as a biodegradable linker to connect one molecule to another molecule, for example, a biologically active molecule. The stability of the biodegradable nucleic acid linker molecule can be modulated by using various combinations of ribonucleotides, deoxyribonucleotides, and chemically modified nucleotides, for example 2'-O-methyl, 2'-fluoro, 2'-amino, 2'-O-amino, 2'-C-allyl, 2'-O-allyl, and other 2'-modified or base modified nucleotides. The biodegradable nucleic acid linker molecule can be a dimer, trimer, tetramer or longer nucleic acid molecule, for example, an oligonucleotide of about 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20 nucleotides in length, or can comprise a single nucleotide with a phosphorus based linkage, for example, a phosphoramidate or phosphodiester linkage. The biodegradable nucleic acid linker molecule can also comprise nucleic acid backbone, nucleic acid sugar, or nucleic acid base modifications.

The term "biodegradable" as used herein, refers to degradation in a biological system, for example, enzymatic degradation or chemical degradation.

The term "biologically active molecule" as used herein, refers to compounds or molecules that are capable of eliciting or modifying a biological response in a system. Non-limiting examples of biologically active molecules contemplated by the instant invention include therapeutically active molecules such as antibodies, hormones, antivirals, peptides, proteins, chemotherapeutics, small molecules, vitamins, co-factors, nucleosides, nucleotides, oligonucleotides, enzymatic nucleic acids, antisense nucleic acids, triplex forming oligonucleotides, 2,5-A chimeras, siRNA, dsRNA, allozymes, aptamers, decoys and analogs thereof. Biologically active molecules of the invention also include molecules capable of modulating the pharmacokinetics and/or pharmacodynamics of other biologically active molecules, for example lipids and polymers such as polyamines, polyamides, polyethylene glycol and other polyethers.

The term "phospholipid" as used herein, refers to a hydrophobic molecule comprising at least one phosphorus group. For example, a phospholipid can comprise a phosphorus

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containing group and saturated or unsaturated alkyl group, optionally substituted with OH, COOH, oxo, amine, or substituted or unsubstituted aryl groups.

Use of the nucleic acid-based molecules of the invention can lead to better treatment of the disease progression by affording the possibility of combination therapies (e.g., multiple antisense or enzymatic nucleic acid molecules targeted to different genes, nucleic acid molecules coupled with known small molecule inhibitors, or intermittent treatment with combinations of molecules (including different motifs) and/or other chemical or biological molecules). The treatment of subjects with nucleic acid molecules can also include combinations of different types of nucleic acid molecules.

In the case that down-regulation of the target is desired, therapeutic nucleic acid molecules (e.g., DNAzymes) delivered exogenously are optimally stable within cells until translation of the target RNA has been inhibited long enough to reduce the levels of the targeted protein. This period of time varies between hours to days depending upon the disease state. These nucleic acid molecules should be resistant to nucleases in order to function as effective intracellular therapeutic agents. Improvements in the chemical synthesis of nucleic acid molecules described in the instant invention and others known in the art have expanded the ability to modify nucleic acid molecules by introducing nucleotide modifications to enhance their nuclease stability as described above.

In another embodiment, nucleic acid catalysts having chemical modifications that maintain or enhance enzymatic activity are provided. Such nucleic acids are also generally more resistant to nucleases than unmodified nucleic acid. Thus, the *in vitro* and/or *in vivo* the activity of the nucleic acid should not be significantly lowered. As exemplified herein, such enzymatic nucleic acids are useful for *in vitro* and/or *in vivo* techniques even if activity over all is reduced 10 fold (Burgin *et al.*, 1996, *Biochemistry*, 35, 14090). Such enzymatic nucleic acids herein are said to "maintain" the enzymatic activity of an all RNA ribozyme or all DNA DNAzyme.

In another aspect the nucleic acid molecules comprise a 5' and/or a 3'- cap structure.

By "cap structure" is meant chemical modifications, which have been incorporated at either terminus of the oligonucleotide (see, for example, Wincott et al., WO 97/26270, incorporated by reference herein). These terminal modifications protect the nucleic acid molecule from exonuclease degradation, and can help in delivery and/or localization within a cell. The cap can be present at the 5'-terminus (5'-cap) or at the 3'-terminus (3'-cap) or can be present on both termini. In non-limiting examples, the 5'-cap includes inverted abasic

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residue (moiety), 4',5'-methylene nucleotide; 1-(beta-D-erythrofuranosyl) nucleotide, 4'-thio nucleotide, carbocyclic nucleotide; 1,5-anhydrohexitol nucleotide; L-nucleotides; alphanucleotides; modified base nucleotide; phosphorodithioate linkage; threo-pentofuranosyl nucleotide; acyclic 3',4'-seco nucleotide; acyclic 3,4-dihydroxybutyl nucleotide; acyclic 3,5-dihydroxypentyl nucleotide, 3'-3'-inverted nucleotide moiety; 3'-3'-inverted abasic moiety; 3'-2'-inverted nucleotide moiety; 3'-2'-inverted abasic moiety; 1,4-butanediol phosphate; 3'-phosphoromidate; hexylphosphate; aminohexyl phosphate; 3'-phosphorothioate; phosphorodithioate; or bridging or non-bridging methylphosphonate moiety (for more details see Wincott et al., International PCT publication No. WO 97/26270, incorporated by reference hercin).

In another embodiment, the 3'-cap includes, for example 4',5'-methylene nucleotide; 1-(bcta-D-erythrofuranosyl) nucleotide; 4'-thio nucleotide, carbocyclic nucleotide; 5'-amino-alkyl phosphate; 1,3-diamino-2-propyl phosphate, 3-aminopropyl phosphate; 6-aminohexyl phosphate; 1,2-aminododecyl phosphate; hydroxypropyl phosphate; 1,5-anhydrohexitol nucleotide; L-nucleotide; alpha-nucleotide; modified base nucleotide; phosphorodithioate; threo-pentofuranosyl nucleotide; acyclic 3',4'-seco nucleotide; 3,4-dihydroxybutyl nucleotide; 3,5-dihydroxypentyl nucleotide, 5'-5'-inverted nucleotide moiety; 5'-5'-inverted abasic moiety; 5'-phosphoramidate; 5'-phosphorothioate; 1,4-butanediol phosphate; 5'-amino; bridging and/or non-bridging 5'-phosphoramidate, phosphorothioate and/or phosphorodithioate, bridging or non bridging methylphosphonate and 5'-mercapto moieties (for more details see Beaucage and Iyer, 1993, Tetrahedron 49, 1925; incorporated by reference herein).

By the term "non-nucleotide" is meant any group or compound which can be incorporated into a nucleic acid chain in the place of one or more nucleotide units, including either sugar and/or phosphate substitutions, and allows the remaining bases to exhibit their enzymatic activity. The group or compound is abasic in that it does not contain a commonly recognized nucleotide base, such as adenosine, guanine, cytosine, uracil or thymine.

The term "alkyl" as used herein refers to a saturated aliphatic hydrocarbon, including straight-chain, branched-chain "isoalkyl", and cyclic alkyl groups. The term "alkyl" also comprises alkoxy, alkyl-thio, alkyl-thio-alkyl, alkoxyalkyl, alkylamino, alkenyl, alkynyl, alkoxy, cycloalkenyl, cycloalkyl, cycloalkylalkyl, heterocycloalkyl, heteroaryl, C1-C6 hydrocarbyl, aryl or substituted aryl groups. Preferably, the alkyl group has 1 to 12 carbons. More preferably it is a lower alkyl of from about 1 to 7 carbons, more preferably about 1 to 4 carbons. The alkyl group can be substituted or unsubstituted. When substituted the substituted group(s) preferably comprise hydroxy, oxy, thio, amino, nitro, cyano, alkoxy,

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alkyl-thio, alkyl-thio-alkyl, alkoxyalkyl, alkylamino, silyl, alkenyl, alkynyl, alkoxy, cycloalkenyl, cycloalkyl, cycloalkylalkyl, heterocycloalkyl, heteroaryl, C1-C6 hydrocarbyl, aryl or substituted aryl groups. The term "alkyl" also includes alkenyl groups containing at least one carbon-carbon double bond, including straight-chain, branched-chain, and cyclic groups. Preferably, the alkenyl group has about 2 to 12 carbons. More preferably it is a lower alkenyl of from about 2 to 7 carbons, more preferably about 2 to 4 carbons. The alkenyl group can be substituted or unsubstituted. When substituted the substituted group(s) preferably comprise hydroxy, oxy, thio, amino, nitro, cyano, alkoxy, alkyl-thio, alkyl-thio-alkyl, alkoxyalkyl, alkylamino, silyl, alkenyl, alkynyl, alkoxy, cycloalkenyl, cycloalkyl, cycloalkyl, heterocycloalkyl, heteroaryl, C1-C6 hydrocarbyl, aryl or substituted aryl groups.

The term "alkyl" also includes alkynyl groups containing at least one carbon-carbon triple bond, including straight-chain, branched-chain, and cyclic groups. Preferably, the alkynyl group has about 2 to 12 carbons. More preferably it is a lower alkynyl of from about 2 to 7 carbons, more preferably about 2 to 4 carbons. The alkynyl group can be substituted or unsubstituted. When substituted the substituted group(s) preferably comprise hydroxy, oxy, thio, amino, nitro, cyano, alkoxy, alkyl-thio, alkyl-thio-alkyl, alkoxyalkyl, alkylamino, silyl, alkenyl, alkynyl, alkoxy, cycloalkenyl, cycloalkyl, cycloalkyl, heterocycloalkyl, heteroaryl, C1-C6 hydrocarbyl, aryl or substituted aryl groups. Alkyl groups or moieties of the invention can also include aryl, alkylaryl, carbocyclic aryl, heterocyclic aryl, amide and ester groups. The preferred substituent(s) of aryl groups are halogen, trihalomethyl, hydroxyl, SH, OH, cyano, alkoxy, alkyl, alkenyl, alkynyl, and amino groups. An "alkylaryl" group refers to an alkyl group (as described above) covalently joined to an aryl group (as described above). Carbocyclic aryl groups are groups wherein the ring atoms on the aromatic ring are all carbon atoms. The carbon atoms are optionally substituted. Heterocyclic aryl groups are groups having from about 1 to 3 heteroatoms as ring atoms in the aromatic ring and the remainder of the ring atoms are carbon atoms. Suitable heteroatoms include oxygen, sulfur, and nitrogen, and include furanyl, thienyl, pyridyl, pyrrolyl, N-lower alkyl pyrrolo, pyrimidyl, pyrazinyl, imidazolyl and the like, all optionally substituted. An "amide" refers to an -C(O)-NH-R, where R is either alkyl, aryl, alkylaryl or hydrogen. An "ester" refers to an -C(O)-OR', where R is either alkyl, aryl, alkylaryl or hydrogen.

The term "alkoxyalkyl" as used herein refers to an alkyl-O-alkyl ether, for example, methoxyethyl or ethoxymethyl.

The term "alkyl-thio-alkyl" as used herein refers to an alkyl-S-alkyl thioether, for example, methylthiomethyl or methylthioethyl.

The term "amino" as used herein refers to a nitrogen containing group as is known in the art derived from ammonia by the replacement of one or more hydrogen radicals by organic radicals. For example, the terms "aminoacyl" and "aminoalkyl" refer to specific N-substituted organic radicals with acyl and alkyl substituent groups respectively.

The term "amination" as used herein refers to a process in which an amino group or substituted amine is introduced into an organic molecule.

The term "exocyclic amine protecting moiety" as used herein refers to a nucleobase amino protecting group compatible with oligonucleotide synthesis, for example, an acyl or amide group.

The term "alkenyl" as used herein refers to a straight or branched hydrocarbon of a designed number of carbon atoms containing at least one carbon-carbon double bond. Examples of "alkenyl" include vinyl, allyl, and 2-methyl-3-heptene.

The term "alkoxy" as used herein refers to an alkyl group of indicated number of carbon atoms attached to the parent molecular moiety through an oxygen bridge. Examples of alkoxy groups include, for example, methoxy, ethoxy, propoxy and isopropoxy.

The term "alkynyl" as used herein refers to a straight or branched hydrocarbon of a designed number of carbon atoms containing at least one carbon-carbon triple bond. Examples of "alkynyl" include propargyl, propyne, and 3-hexyne.

The term "aryl" as used herein refers to an aromatic hydrocarbon ring system containing at least one aromatic ring. The aromatic ring can optionally be fused or otherwise attached to other aromatic hydrocarbon rings or non-aromatic hydrocarbon rings. Examples of aryl groups include, for example, phenyl, naphthyl, 1,2,3,4-tetrahydronaphthalene and biphenyl. Preferred examples of aryl groups include phenyl and naphthyl.

The term "cycloalkenyl" as used herein refers to a C3-C8 cyclic hydrocarbon containing at least one carbon-carbon double bond. Examples of cycloalkenyl include cyclopropenyl, cyclobutenyl, cyclopentenyl, cyclopentadiene, cyclohexenyl, 1,3-cyclohexadiene, cycloheptenyl, cycloheptatrienyl, and cyclooctenyl.

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The term "cycloalkyl" as used herein refers to a C3-C8 cyclic hydrocarbon. Examples of cycloalkyl include cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cyclohexyl and cycloctyl.

The term "cycloalkylalkyl," as used herein, refers to a C3-C7 cycloalkyl group attached to the parent molecular moiety through an alkyl group, as defined above. Examples of cycloalkylalkyl groups include cyclopropylmethyl and cyclopentylethyl.

The terms "halogen" or "halo" as used herein refers to indicate fluorine, chlorine, bromine, and iodine.

The term "heterocycloalkyl," as used herein refers to a non-aromatic ring system containing at least one heteroatom selected from nitrogen, oxygen, and sulfur. The heterocycloalkyl ring can be optionally fused to or otherwise attached to other heterocycloalkyl rings and/or non-aromatic hydrocarbon rings. Preferred heterocycloalkyl groups have from 3 to 7 members. Examples of heterocycloalkyl groups include, for example, piperazine, morpholine, piperidine, tetrahydrofuran, pyrrolidine, and pyrazole. Preferred heterocycloalkyl groups include piperidinyl, piperazinyl, morpholinyl, and pyrolidinyl.

The term "heteroaryl" as used herein refers to an aromatic ring system containing at least one heteroatom selected from nitrogen, oxygen, and sulfur. The heteroaryl ring can be fused or otherwise attached to one or more heteroaryl rings, aromatic or non-aromatic hydrocarbon rings or heterocycloalkyl rings. Examples of heteroaryl groups include, for example, pyridine, furan, thiophene, 5,6,7,8-tetrahydroisoquinoline and pyrimidine. Preferred examples of heteroaryl groups include thienyl, benzothienyl, pyridyl, quinolyl, pyrazinyl, pyrimidyl, imidazolyl, benzimidazolyl, furanyl, benzofuranyl, thiazolyl, benzothiazolyl, isoxazolyl, oxadiazolyl, isothiazolyl, benzisothiazolyl, triazolyl, tetrazolyl, pyrrolyl, indolyl, pyrazolyl, and benzopyrazolyl.

The term "C1-C6 hydrocarbyl" as used herein refers to straight, branched, or cyclic alkyl groups having 1-6 carbon atoms, optionally containing one or more carbon-carbon double or triple bonds. Examples of hydrocarbyl groups include, for example, methyl, ethyl, propyl, isopropyl, n-butyl, sec-butyl, tert-butyl, pentyl, 2-pentyl, isopentyl, neopentyl, hexyl, 2-hexyl, 3-hexyl, 3-methylpentyl, vinyl, 2-pentene, cyclopropylmethyl, cyclopropyl, cyclohexylmethyl, cyclohexyl and propargyl. When reference is made herein to C1-C6 hydrocarbyl containing one or two double or triple bonds it is understood that at least two

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carbons are present in the alkyl for one double or triple bond, and at least four carbons for two double or triple bonds.

By "nucleotide" is meant a heterocyclic nitrogenous base in N-glycosidic linkage with a phosphorylated sugar. Nucleotides are recognized in the art to include natural bases (standard), and modified bases well known in the art. Such bases are generally located at the l' position of a nucleotide sugar moiety. Nucleotides generally comprise a base, sugar and a phosphate group. The nucleotides can be unmodified or modified at the sugar, phosphate and/or base moiety, (also referred to interchangeably as nucleotide analogs, modified nucleotides, non-natural nucleotides, non-standard nucleotides and other; see for example, Usman and McSwiggen, supra; Eckstein et al., International PCT Publication No. WO 92/07065; Usman et al., International PCT Publication No. WO 93/15187; Uhlman & Peyman, supra all are hereby incorporated by reference herein. There are several examples of modified nucleic acid bases known in the art as summarized by Limbach et al., 1994, Nucleic Acids Res. 22, 2183. Some of the non-limiting examples of chemically modified and other natural nucleic acid bases that can be introduced into nucleic acids include, for example, inosine, purine, pyridin-4-one, pyridin-2-one, phenyl, pseudouracil, 2, 4, 6-trimethoxy benzene, 3-methyl uracil, dihydrouridine, naphthyl, aminophenyl, 5-alkylcytidines (e.g., 5-methylcytidine), 5-alkyluridines (e.g., ribothymidine), 5-halouridine (e.g., 5-bromouridine) or 6-azapyrimidines or 6-alkylpyrimidines (e.g. 6-methyluridine), propyne, quesosine, 2thiouridine, 4-thiouridine, wybutosine, wybutoxosine, 4-acetylcytidine, 5-(carboxyhydroxymethyl)uridine, 5'-carboxymethylaminomethyl-2-thiouridine, 5carboxymethylaminomethyluridine, beta-D-galactosylqueosine, 1-methyladenosine, 1methylinosine, 2,2-dimethylguanosine, 3-methylcytidine, 2-methyladenosine, 2methylguanosine, N6-methyladenosine, 7-methylguanosine, 5-methoxyaminomethyl-2-25 ... thiouridine, 5-methylaminomethyluridine, 5-methylcarbonylmethyluridine, 5methyloxyuridine, 5-methyl-2-thiouridine, 2-methylthio-N6-isopentenyladenosine, beta-Dmannosylqueosine, uridine-5-oxyacetic acid, 2-thiocytidine, threonine derivatives and others (Burgin et al., 1996, Biochemistry, 35, 14090; Uhlman & Peyman, supra). By "modified bases" in this aspect is meant nucleotide bases other than adenine, guanine, cytosine and uracil at 1' position or their equivalents; such bases can be used at any position, for example, within the catalytic core of an enzymatic nucleic acid molecule and/or in the substrate-binding regions of the nucleic acid molecule.

By "nucleoside" is meant a heterocyclic nitrogenous base in N-glycosidic linkage with a sugar. Nucleosides are recognized in the art to include natural bases (standard), and modified bases well known in the art. Such bases are generally located at the 1' position of a

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nucleoside sugar moiety. Nucleosides generally comprise a base and sugar group. The nucleosides can be unmodified or modified at the sugar, and/or base moiety (also referred to interchangeably as nucleoside analogs, modified nucleosides, non-natural nucleosides, nonstandard nucleosides and other; see for example, Usman and McSwiggen, supra; Eckstein et al., International PCT Publication No. WO 92/07065; Usman et al., International PCT Publication No. WO 93/15187; Uhlman & Peyman, supra all are hereby incorporated by reference herein). There are several examples of modified nucleic acid bases known in the art as summarized by Limbach et al., 1994, Nucleic Acids Res. 22, 2183. Some of the nonlimiting examples of chemically modified and other natural nucleic acid bases that can be introduced into nucleic acids include, inosine, purine, pyridin-4-one, pyridin-2-one, phenyl, pseudouracil, 2, 4, 6-trimethoxy benzene, 3-methyl uracil, dihydrouridine, naphthyl, aminophenyl, 5-alkylcytidines (e.g., 5-methylcytidine), 5-alkyluridines (e.g., ribothymidine), 5-halouridine (e.g., 5-bromouridine) or 6-azapyrimidines or 6-alkylpyrimidines (e.g. 6methyluridine), propyne, quesosine, 2-thiouridine, 4-thiouridine, wybutosine, wybutoxosine, 5'-carboxymethylaminomethyl-2-5-(carboxyhydroxymethyl)uridine, 4-acetylcytidine, beta-D-galactosylqueosine, 1-5-carboxymethylaminomethyluridine, thiouridine, 2-3-methylcytidine, 2,2-dimethylguanosine, methyladenosine, 1-methylinosine, 5-7-methylguanosine, N6-methyladenosine, 2-methylguanosine, methyladenosine, 5-5-methylaminomethyluridine, methoxyaminomethyl-2-thiouridine, methylcarbonylmethyluridine, 5-methyloxyuridine, 5-methyl-2-thiouridine, 2-methylthio-N6isopentenyladenosine, beta-D-mannosylqueosine, uridine-5-oxyacetic acid, 2-thiocytidine, threonine derivatives and others (Burgin et al., 1996, Biochemistry, 35, 14090; Uhlman & Peyman, supra). By "modified bases" in this aspect is meant nucleoside bases other than adenine, guanine, cytosine and uracil at 1' position or their equivalents; such bases can be used at any position, for example, within the catalytic core of an enzymatic nucleic acid molecule and/or in the substrate-binding regions of the nucleic acid molecule.

In one embodiment, the invention features modified enzymatic nucleic acid molecules with phosphate backbone modifications comprising one or more phosphorothioate, phosphorodithioate, methylphosphonate, morpholino, amidate carbamate, carboxymethyl, acetamidate, polyamide, sulfonate, sulfonamide, sulfamate, formacetal, thioformacetal, and/or alkylsilyl, substitutions. For a review of oligonucleotide backbone modifications see Hunziker and Leumann, 1995, Nucleic Acid Analogues: Synthesis and Properties, in Modern Synthetic Methods, VCH, 331-417, and Mesmaeker et al., 1994, Novel Backbone Replacements for Oligonucleotides, in Carbohydrate Modifications in Antisense Research, ACS, 24-39. These references are hereby incorporated by reference herein.

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By "abasic" is meant sugar moieties lacking a base or having other chemical groups in place of a base at the 1' position, for example a 3',3'-linked or 5',5'-linked deoxyabasic ribose derivative (for more details see Wincott *et al.*, International PCT publication No. WO 97/26270).

By "unmodified nucleoside" is meant one of the bases adenine, cytosine, guanine, thymine, uracil joined to the 1' carbon of β-D-ribo-furanose.

By "modified nucleoside" is meant any nucleotide base which contains a modification in the chemical structure of an unmodified nucleotide base, sugar and/or phosphate.

In connection with 2'-modified nucleotides as described for the present invention, by "amino" is meant 2'-NH<sub>2</sub> or 2'-O- NH<sub>2</sub>, which can be modified or unmodified. Such modified groups are described, for example, in Eckstein *et al.*, U.S. Patent 5,672,695 and Matulic-Adamic *et al.*, WO 98/28317, respectively, which are both incorporated by reference in their entireties.

Various modifications to nucleic acid (e.g., DNAzyme) structure can be made to enhance the utility of these molecules. For example, such modifications can enhance shelf-life, half-life in vitro, stability, and ease of introduction of such oligonucleotides to the target site, including e.g., enhancing penetration of cellular membranes and conferring the ability to recognize and bind to targeted cells.

Use of these molecules can lead to better treatment of the disease progression by affording the possibility of combination therapies (e.g., multiple enzymatic nucleic acid molecules targeted to different genes, enzymatic nucleic acid molecules coupled with known small molecule inhibitors, or intermittent treatment with combinations of enzymatic nucleic acid molecules (including different enzymatic nucleic acid molecule motifs) and/or other chemical or biological molecules). The treatment of subjects with nucleic acid molecules can also include combinations of different types of nucleic acid molecules. Therapies can be devised which include a mixture of enzymatic nucleic acid molecules (including different enzymatic nucleic acid molecules acid molecules to one or more targets to alleviate symptoms of a disease.

# Administration of Nucleic Acid Molecules

Methods for the delivery of nucleic acid molecules are described in Akhtar et al., 1992, Trends Cell Bio., 2, 139; and Delivery Strategies for Antisense Oligonucleotide Therapeutics, ed. Akhtar, 1995, which are both incorporated herein by reference. Sullivan et al., PCT WO

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94/02595, further describes the general methods for delivery of enzymatic RNA molecules. These protocols can be utilized for the delivery of virtually any nucleic acid molecule. Nucleic acid molecules can be administered to cells by a variety of methods known to those familiar to the art, including, but not restricted to, encapsulation in liposomes, by iontophoresis, or by incorporation into other vehicles, such as hydrogels, cyclodextrins, biodegradable nanocapsules, and bioadhesive microspheres. Alternatively, the nucleic acid/vehicle combination is locally delivered by direct injection or by use of an infusion pump. Other routes of delivery include, but are not limited to oral (tablet or pill form) and/or intrathecal delivery (Gold, 1997, Neuroscience, 76, 1153-1158). Other approaches include the use of various transport and carrier systems, for example though the use of conjugates and biodegradable polymers. For a comprehensive review on drug delivery strategies including CNS delivery, see Ho et al., 1999, Curr. Opin. Mol. Ther., 1, 336-343 and Jain, Drug Delivery Systems: Technologies and Commercial Opportunities, Decision Resources, 1998 and Groothuis et al., 1997, J. Neuro Virol., 3, 387-400. More detailed descriptions of nucleic acid delivery and administration are provided in Sullivan et al., supra, Draper et al., PCT WO93/23569, Beigelman et al., PCT WO99/05094, and Klimuk et al., PCT WO99/04819, all

The molecules of the instant invention can be used as pharmaceutical agents. Pharmaceutical agents prevent, inhibit the occurrence, or treat (alleviate a symptom to some extent, preferably all of the symptoms) of a disease state in a subject.

of which have been incorporated by reference herein.

The negatively charged polynucleotides of the invention can be administered (e.g., RNA, DNA or protein) and introduced into a subject by any standard means described herein and known in the art, with or without stabilizers, buffers, and the like, to form a pharmaceutical composition. When it is desired to use a liposome delivery mechanism, standard protocols for formation of liposomes can be followed. The compositions of the present invention can also be formulated and used as tablets, capsules or elixirs for oral administration; suppositories for rectal administration; sterile solutions; suspensions for injectable administration; and the other compositions known in the art.

The present invention also includes pharmaceutically acceptable formulations of the compounds described. These formulations include salts of the above compounds, e.g., acid addition salts, for example, salts of hydrochloric, hydrobromic, acetic acid, and benzene sulfonic acid.

A pharmacological composition or formulation refers to a composition or formulation in a form suitable for administration, e.g., systemic administration, into a cell or subject,

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preferably a human. Suitable forms, in part, depend upon the use or the route of entry, for example oral, transdermal, or by injection. Such forms should not prevent the composition or formulation from reaching a target cell (i.e., a cell to which the negatively charged polymer is desired to be delivered to). For example, pharmacological compositions injected into the blood stream should be soluble. Other factors are known in the art, and include considerations such as toxicity and forms which prevent the composition or formulation from exerting its effect.

By "systemic administration" is meant in vivo systemic absorption or accumulation of drugs in the blood stream followed by distribution throughout the entire body. Administration routes which lead to systemic absorption include, without limitations: intravenous, subcutaneous, intraperitoneal, inhalation. oral. intrapulmonary intramuscular. Each of these administration routes expose the desired negatively charged polymers, e.g., nucleic acids, to an accessible diseased tissue. The rate of entry of a drug into the circulation has been shown to be a function of molecular weight or size. The use of a liposome or other drug carrier comprising the compounds of the instant invention can potentially localize the drug, for example, in certain tissue types, such as the tissues of the reticular endothelial system (RES). A liposome formulation that can facilitate the association of drug with the surface of cells, such as, lymphocytes and macrophages is also useful. This approach can provide enhanced delivery of the drug to target cells by taking advantage of the specificity of macrophage and lymphocyte immune recognition of abnormal cells, such as cancer cells.

By pharmaceutically acceptable formulation is meant, a composition or formulation that allows for the effective distribution of the nucleic acid molecules of the instant invention in the physical location most suitable for their desired activity. Non-limiting examples of agents suitable for formulation with the nucleic acid molecules of the instant invention include: PEG conjugated nucleic acids, phospholipid conjugated nucleic acids, nucleic acids containing lipophilic moieties, phosphorothioates, P-glycoprotein inhibitors (such as Pluronic P85) which can enhance entry of drugs into various tissues, for exaple the CNS (Jolliet-Riant and Tillement, 1999, Fundam. Clin. Pharmacol., 13, 16-26); biodegradable polymers, such as poly (DL-lactide-coglycolide) microspheres for sustained release delivery after implantation (Emerich, DF et al, 1999, Cell Transplant, 8, 47-58) Alkermes, Inc. Cambridge, MA; and loaded nanoparticles, such as those made of polybutylcyanoacrylate, which can deliver drugs across the blood brain barrier and can alter neuronal uptake mechanisms (Prog Neuropsychopharmacol Biol Psychiatry, 23, 941-949, 1999). Other non-limiting examples of delivery strategies, including CNS delivery of the nucleic acid molecules of the instant

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invention include material described in Boado et al., 1998, J. Pharm. Sci., 87, 1308-1315; Tyler et al., 1999, FEBS Lett., 421, 280-284; Pardridge et al., 1995, PNAS USA., 92, 5592-5596; Boado, 1995, Adv. Drug Delivery Rev., 15, 73-107; Aldrian-Herrada et al., 1998, Nucleic Acids Res., 26, 4910-4916; and Tyler et al., 1999, PNAS USA., 96, 7053-7058. All these references are hereby incorporated herein by reference.

The invention also features the use of the composition comprising surface-modified liposomes containing poly (ethylene glycol) lipids (PEG-modified, or long-circulating liposomes or stealth liposomes). Nucleic acid molecules of the invention can also comprise covalently attached PEG molecules of various molecular weights. These formulations offer a method for increasing the accumulation of drugs in target tissues. This class of drug carriers resists opsonization and elimination by the mononuclear phagocytic system (MPS or RES), thereby enabling longer blood circulation times and enhanced tissue exposure for the encapsulated drug (Lasic et al. Chem. Rev. 1995, 95, 2601-2627; Ishiwata et al., Chem. Pharm. Bull. 1995, 43, 1005-1011). Such liposomes have been shown to accumulate selectively in tumors, presumably by extravasation and capture in the neovascularized target tissues (Lasic et al., Science 1995, 267, 1275-1276; Oku et al., 1995, Biochim. Biophys. Acta, 1238, 86-90). The long-circulating liposomes enhance the pharmacokinetics and pharmacodynamics of DNA and RNA, particularly compared to conventional cationic liposomes, which are known to accumulate in tissues of the MPS (Liu et al., J. Biol. Chem. 1995, 42, 24864-24870; Choi et al., International PCT Publication No. WO 96/10391; Ansell et al., International PCT Publication No. WO 96/10390; Holland et al., International PCT Publication No. WO 96/10392; all of which are incorporated by reference herein). Longcirculating liposomes are also likely to protect drugs from nuclease degradation to a greater extent compared to cationic liposomes, based on their ability to avoid accumulation in metabolically aggressive MPS tissues such as the liver and spleen. All of these references are incorporated by reference herein.

The present invention also includes compositions prepared for storage or administration that include a pharmaceutically effective amount of the desired compounds in a pharmaceutically acceptable carrier or diluent. Acceptable carriers or diluents for therapeutic use are well known in the pharmaceutical art, and are described, for example, in *Remington's Pharmaceutical Sciences*, Mack Publishing Co. (A.R. Gennaro edit. 1985), hereby incorporated by reference herein. For example, preservatives, stabilizers, dyes and flavoring agents can be provided. These include sodium benzoate, sorbic acid and esters of phydroxybenzoic acid. In addition, antioxidants and suspending agents can be used.

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A pharmaceutically effective dose is that dose required to prevent, inhibit the occurrence, or treat (alleviate a symptom to some extent, preferably all of the symptoms) of a disease state. The pharmaceutically effective dose depends on the type of disease, the composition used, the route of administration, the type of mammal being treated, the physical characteristics of the specific mammal under consideration, concurrent medication, and other factors which those skilled in the medical arts will recognize. Generally, an amount between 0.1 mg/kg and 100 mg/kg body weight/day of active ingredients is administered dependent upon potency of the negatively charged polymer.

The nucleic acid molecules of the invention and formulations thereof can be administered orally, topically, parenterally, by inhalation or spray, or rectally in dosage unit formulations containing conventional non-toxic pharmaceutically acceptable carriers, adjuvants and/or vehicles. The term parenteral as used herein includes percutaneous, subcutaneous, intravascular (e.g., intravenous), intramuscular, or intrathecal injection or infusion techniques and the like. In addition, there is provided a pharmaceutical formulation comprising a nucleic acid molecule of the invention and a pharmaceutically acceptable carrier. One or more nucleic acid molecules of the invention can be present in association with one or more non-toxic pharmaceutically acceptable carriers and/or diluents and/or adjuvants, and if desired other active ingredients. The pharmaceutical compositions containing nucleic acid molecules of the invention can be in a form suitable for oral use, for example, as tablets, troches, lozenges, aqueous or oily suspensions, dispersible powders or granules, emulsion, hard or soft capsules, or syrups or elixirs.

Compositions intended for oral use can be prepared according to any method known to the art for the manufacture of pharmaceutical compositions and such compositions can contain one or more such sweetening agents, flavoring agents, coloring agents or preservative agents in order to provide pharmaceutically elegant and palatable preparations. Tablets contain the active ingredient in admixture with non-toxic pharmaceutically acceptable excipients that are suitable for the manufacture of tablets. These excipients can be, for example, inert diluents, such as calcium carbonate, sodium carbonate, lactose, calcium phosphate or sodium phosphate; granulating and disintegrating agents, for example, corn starch, or alginic acid; binding agents, for example starch, gelatin or acacia, and lubricating agents, for example magnesium stearate, stearic acid or talc. The tablets can be uncoated or they can be coated by known techniques. In some cases such coatings can be prepared by known techniques to delay disintegration and absorption in the gastrointestinal tract and thereby provide a sustained action over a longer period. For example, a time delay material such as glyceryl monosterate or glyceryl distearate can be employed.

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Formulations for oral use can also be presented as hard gelatin capsules wherein the active ingredient is mixed with an inert solid diluent, for example, calcium carbonate, calcium phosphate or kaolin, or as soft gelatin capsules wherein the active ingredient is mixed with water or an oil medium, for example peanut oil, liquid paraffin or olive oil.

Aqueous suspensions contain the active materials in admixture with excipients suitable for the manufacture of aqueous suspensions. Such excipients are suspending agents, for example, sodium carboxymethylcellulose, methylcellulose, hydropropyl-methylcellulose, sodium alginate, polyvinylpyrrolidone, gum tragacanth and gum acacia; dispersing or wetting agents can be a naturally-occurring phosphatide, for example, lecithin, or condensation products of an alkylene oxide with fatty acids, for example polyoxyethylene stearate, or condensation products of ethylene oxide with long chain aliphatic alcohols, for example heptadecaethyleneoxycetanol, or condensation products of ethylene oxide with partial esters derived from fatty acids and a hexitol such as polyoxyethylene sorbitol monooleate, or condensation products of ethylene oxide with partial esters derived from fatty acids and hexitol anhydrides, for example polyethylene sorbitan monooleate. The aqueous suspensions can also contain one or more preservatives, for example, ethyl, or n-propyl p-hydroxybenzoate, one or more coloring agents, one or more flavoring agents, and one or more sweetening agents, such as sucrose or saccharin.

Oily suspensions can be formulated by suspending the active ingredients in a vegetable oil, for example arachis oil, olive oil, sesame oil or coconut oil, or in a mineral oil such as liquid paraffin. The oily suspensions can contain a thickening agent, for example beeswax, hard paraffin or cetyl alcohol. Sweetening agents and flavoring agents can be added to provide palatable oral preparations. These compositions can be preserved by the addition of an anti-oxidant such as ascorbic acid.

Dispersible powders and granules suitable for preparation of an aqueous suspension by the addition of water provide the active ingredient in admixture with a dispersing or wetting agent, suspending agent and one or more preservatives. Suitable dispersing or wetting agents or suspending agents are exemplified by those already mentioned above. Additional excipients, for example sweetening, flavoring and coloring agents, can also be present.

Pharmaceutical compositions of the invention can also be in the form of oil-in-water emulsions. The oily phase can be a vegetable oil or a mineral oil or mixtures of these. Suitable emulsifying agents can be naturally-occurring gums, for example gum acacia or gum tragacanth, naturally-occurring phosphatides, for example soy bean, lecithin, and esters or

partial esters derived from fatty acids and hexitol, anhydrides, for example, sorbitan monooleate, and condensation products of the said partial esters with ethylene oxide, for example polyoxyethylene sorbitan monooleate. The emulsions can also contain sweetening and flavoring agents.

5 Syrups and elixirs can be formulated with sweetening agents, for example glycerol, propylene glycol, sorbitol, glucose or sucrose. Such formulations can also contain a demulcent, a preservative and flavoring and coloring agents. The pharmaceutical compositions can be in the form of a sterile injectable aqueous or oleaginous suspension. This suspension can be formulated according to the known art using those suitable dispersing 10 or wetting agents and suspending agents that have been mentioned above. The sterile injectable preparation can also be a sterile injectable solution or suspension in a non-toxic parentally acceptable diluent or solvent, for example as a solution in 1,3-butanediol. Among the acceptable vehicles and solvents that can be employed are water, Ringer's solution and isotonic sodium chloride solution. In addition, sterile, fixed oils are conventionally employed 15 as a solvent or suspending medium. For this purpose any bland fixed oil can be employed including synthetic mono-or diglycerides. In addition, fatty acids such as oleic acid find use in the preparation of injectables.

The nucleic acid molecules of the invention can also be administered in the form of suppositories, e.g., for rectal administration of the drug. These compositions can be prepared by mixing the drug with a suitable non-irritating excipient that is solid at ordinary temperatures but liquid at the rectal temperature and will therefore melt in the rectum to release the drug. Such materials include cocoa butter and polyethylene glycols.

Nucleic acid molecules of the invention can be administered parenterally in a sterile medium. The drug, depending on the vehicle and concentration used, can either be suspended or dissolved in the vehicle. Advantageously, adjuvants such as local anesthetics, preservatives and buffering agents can be dissolved in the vehicle.

Dosage levels of the order of from about 0.1 mg to about 140 mg per kilogram of body weight per day are useful in the treatment of the above-indicated conditions (about 0.5 mg to about 7 g per patient or subject per day). The amount of active ingredient that can be combined with the carrier materials to produce a single dosage form varies depending upon the host treated and the particular mode of administration. Dosage unit forms generally contain between from about 1 mg to about 500 mg of an active ingredient.

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It is understood that the specific dose level for any particular patient or subject depends upon a variety of factors including the activity of the specific compound employed, the age, body weight, general health, sex, diet, time of administration, route of administration, and rate of excretion, drug combination and the severity of the particular disease undergoing therapy.

For administration to non-human animals, the composition can also be added to the animal feed or drinking water. It can be convenient to formulate the animal feed and drinking water compositions so that the animal takes in a therapeutically appropriate quantity of the composition along with its diet. It can also be convenient to present the composition as a premix for addition to the feed or drinking water.

The nucleic acid molecules of the present invention can also be administered to a patient or subject in combination with other therapeutic compounds to increase the overall therapeutic effect. The use of multiple compounds to treat an indication can increase the beneficial effects while reducing the presence of side effects.

In another aspect of the invention, nucleic acid molecules of the present invention are preferably expressed from transcription units (see for example Couture *et al.*, 1996, *TIG.*, 12, 510, Skillern *et al.*, International PCT Publication No. WO 00/22113, Conrad, International PCT Publication No. WO 00/22114, and Conrad, US 6,054,299) inserted into DNA or RNA vectors. The recombinant vectors are preferably DNA plasmids or viral vectors. Enzymatic nucleic acid expressing viral vectors can be constructed based on, but not limited to, adeno-associated virus, retrovirus, adenovirus, or alphavirus. Preferably, the recombinant vectors capable of expressing the nucleic acid molecules are delivered as described above, and persist in target cells. Alternatively, viral vectors can be used that provide for transient expression of nucleic acid molecules. Such vectors can be repeatedly administered as necessary. Once expressed, the nucleic acid molecule binds to the target mRNA. Delivery of nucleic acid molecule expressing vectors can be systemic, such as by intravenous or intra-muscular administration, by administration to target cells ex-planted from the subject followed by reintroduction into the subject, or by any other means that would allow for introduction into the desired target cell (for a review see Couture *et al.*, 1996, *TIG.*, 12, 510).

One aspect of the invention features an expression vector comprising a nucleic acid sequence encoding at least one of the nucleic acid molecules of the instant invention. The nucleic acid sequence encoding the nucleic acid molecule of the instant invention is operably linked in a manner that allows expression of that nucleic acid molecule.

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Another aspect the invention features an expression vector comprising nucleic acid sequence encoding at least one of the nucleic acid molecules of the invention, in a manner which allows expression of that nucleic acid molecule. The expression vector comprises in one embodiment; a) a transcription initiation region; b) a transcription termination region; c) a nucleic acid sequence encoding at least one said nucleic acid molecule; and wherein said sequence is operably linked to said initiation region and said termination region, in a manner that allows expression and/or delivery of said nucleic acid molecule.

In another embodiment, the expression vector comprises: a) a transcription initiation region; b) a transcription termination region; c) an open reading frame; d) a nucleic acid sequence encoding at least one said nucleic acid molecule, wherein said sequence is operably linked to the 3'-end of said open reading frame; and wherein said sequence is operably linked to said initiation region, said open reading frame and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule. In yet another embodiment the expression vector comprises: a) a transcription initiation region; b) a transcription termination region; c) an intron; d) a nucleic acid sequence encoding at least one said nucleic acid molecule; and wherein said sequence is operably linked to said initiation region, said intron and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule.

In another embodiment, the expression vector comprises: a) a transcription initiation region; b) a transcription termination region; c) an intron; d) an open reading frame; e) a nucleic acid sequence encoding at least one said nucleic acid molecule, wherein said sequence is operably linked to the 3'-end of said open reading frame; and wherein said sequence is operably linked to said initiation region, said intron, said open reading frame and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule.

## **Examples**

The following are non-limiting examples showing the selection, isolation, synthesis and activity of nucleic acids of the instant invention.

## Example 1: Identification of Potential Target Sites in Human Ras RNA

The sequence of human Ras genes were screened for accessible sites using a computerfolding algorithm. Regions of the RNA that do not form secondary folding structures and contain potential enzymatic nucleic acid molecule and/or antisense binding/cleavage sites

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were identified. The sequences of K-Ras and H-Ras binding/cleavage sites are shown in Tables II and III.

# Example 2: Selection of Enzymatic Nucleic Acid Cleavage Sites in Human Ras RNA

Enzymatic nucleic acid molecule target sites were chosen by analyzing sequences of
Human K-Ras and H-Ras (for example, Genbank accession Nos: NM\_004985 and
NM\_005343 respectively) and prioritizing the sites on the basis of folding. Enzymatic
nucleic acid molecules were designed that can bind each target and were individually
analyzed by computer folding (Christoffersen et al., 1994 J. Mol. Struc. Theochem, 311, 273;
Jaeger et al., 1989, Proc. Natl. Acad. Sci. USA, 86, 7706) to assess whether the enzymatic
nucleic acid molecule sequences fold into the appropriate secondary structure. Those
enzymatic nucleic acid molecules with unfavorable intramolecular interactions between the
binding arms and the catalytic core are eliminated from consideration. As noted below,
varying binding arm lengths can be chosen to optimize activity. Generally, at least 5 bases on
each arm are able to bind to, or otherwise interact with, the target RNA.

# 15 Example 3: Chemical Synthesis and Purification of Enzymatic Nucleic Acid Molecules for Efficient Cleavage and/or blocking of Ras RNA

DNAzyme molecules are designed to anneal to various sites in the RNA message. The binding arms of the DNAzyme molecules are complementary to the target site sequences described above. The DNAzymes were chemically synthesized. The method of synthesis used followed the procedure for nucleic acid synthesis as described herein and in Usman et al., (1987 J. Am. Chem. Soc., 109, 7845), Scaringe et al., (1990 Nucleic Acids Res., 18, 5433) and Wincott et al., supra, and made use of common nucleic acid protecting and coupling groups, such as dimethoxytrityl at the 5'-end, and phosphoramidites at the 3'-end. The average stepwise coupling yields were typically >98%. The sequences of the chemically synthesized DNAzyme molecules used in this study are shown below in **Tables II and III**.

# Example 4: DNAzyme Cleavage of Ras RNA Target in vitro

DNAzymes targeted to the human K-Ras and H-Ras RNA are designed and synthesized as described above. These enzymatic nucleic acid molecules can be tested for cleavage activity *in vitro*, for example, using the following procedure. The target sequences and the nucleotide location within the K-Ras and H-Ras RNA are given in **Tables II and III** respectively.

#### Cleavage Reactions:

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DNAzymes and substrates were synthesized in 96-well format using 0.2µmol scale. Substrates were 5'-<sup>32</sup>P labeled and gel purified using 7.5% polyacrylamide gels, and eluting into water. Assays were done by combining trace substrate with 500nM DNAzyme or greater, and initiated by adding final concentrations of 40mM Mg<sup>+2</sup>, and 50mM Tris-Cl pH 8.0. For each DNAzyme/substrate combination a control reaction was done to ensure cleavage was not the result of non-specific substrate degradation. A single three hour time point was taken and run on a 15% polyacrylamide gel to asses cleavage activity. Gels were dried and scanned using a Molecular Dynamics Phosphorimager and quantified using Molecular Dynamics ImageQuant software. Percent cleaved was determined by dividing values for cleaved substrate bands by full-length (uncleaved) values plus cleaved values and multiplying by 100 (%cleaved=[C/(U+C)]\*100).

# Example 5: DNAzyme Cleavage of Ras RNA Target in vivo

#### Cell Culture

Wickstrom, 2001, Mol. Biotechnol., 18, 35-35, describes a cell culture system in which antisense oligonucleotides targeting H-Ras were studied in transformed mouse cells that form solid tumors. Treatment of cells with antisense targeting H-Ras resulted in the sequence specific and dose dependent inhibition of H-Ras expression. In this study, it was determined that antisense targeting the first intron region of H-Ras were more effective than antisense targeting the initiation codon region.

Kita et al., 1999, Int. J. Cancer, 80, 553-558, describes the growth inhibition of human pancreatic cancer cell lines by antisense oligonucleotides specific to mutated K-Ras genes. Antisense oligonucleotides were transfected to the transformed cells using liposomes. Cellular proliferation, K-Ras mRNA expression, and K-Ras protein synthesis were all evaluated as endpoints. Sato et al., 2000, Cancer Lett., 155, 153-161, describes another human pancreatic cancer cell line, HOR-P1, that is characterized by high angiogenic activity and metastatic potential. Genetic and molecular analysis of this cell line revealed both increased telomerase activity and a mutation in the K-Ras oncogene.

A variety of endpoints have been used in cell culture models to look at Ras-mediated effects after treatment with anti-Ras agents. Phenotypic endpoints include inhibition of cell proliferation, RNA expression, and reduction of Ras protein expression. Because Ras oncogene mutations are directly associated with increased proliferation of cetain tumor cells,

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a proliferation endpoint for cell culture assays is preferably used as the primary screen. There are several methods by which this endpoint can be measured. Following treatment of cells with DNAzymes, cells are allowed to grow (typically 5 days) after which either the cell viability, the incorporation of [3H] thymidine into cellular DNA and/or the cell density can be measured. The assay of cell density is done in a 96-well format using commercially available fluorescent nucleic acid stains (such as Syto® 13 or CyQuant®). As a secondary, confirmatory endpoint a DNAzyme-mediated decrease in the level of Ras protein expression is evaluated using a Ras-specific ELISA.

#### Animal Models

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Evaluating the efficacy of anti-Ras agents in animal models is an important prerequisite to human clinical trials. As in cell culture models, the most Ras sensitive mouse tumor xenografts are those derived from cancer cells that express mutant Ras proteins. Nude mice bearing H-Ras transformed bladder cancer cell xenografts were sensitive to an anti-Ras antisense nucleic acid, resulting in an 80% inhibition of tumor growth after a 31 day treatment period (Wickstrom, 2001, Mol. Biotechnol., 18, 35-35). Zhang et al., 2000, Gene Ther., 7, 15 2041, describes an anti-K-Ras ribozyme adenoviral vector (KRbz-ADV) targeting a K-Ras mutant (K-Ras codon 12 GGT to GTT; H441 and H1725 cells respectively). Non-small cell lung cancer cells (NSCLC H441 and H1725 cells) that express the mutant K-Ras protein were used in nude mouse xenografts compared to NSCLC H1650 cells that lack the relevant mutation. Pre-treatment with KRbz-ADV completely abrogated engraftment of both H441 20 and H1725 cells and compared to 100% engraftment and tumor growth in animals that received untreated tumor cells or a control vector. The above studies provide proof that inhibition of Ras expression by anti-Ras agents causes inhibition of tumor growth in animals. Anti-Ras DNAzymes chosen from in vitro assays are further tested in similar mouse xenograft models. Active DNAzymes are subsequently tested in combination with standard 25 chemotherapies.

#### **Indications**

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Particular degenerative and disease states that are associated with Ras expression modulation include but are not limited to cancer, for example lung cancer, colorectal cancer, bladder cancer, pancreatic cancer, breast cancer, prostate cancer and/or any other diseases or conditions that are related to or will respond to the levels of Ras in a cell or tissue, alone or in combination with other therapies.

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The present body of knowledge in Ras research indicates the need for methods to assay Ras activity and for compounds that can regulate Ras expression for research, diagnostic, and therapeutic use.

The use of monoclonal antibodies, chemotherapy, radiation therapy, and analgesics, are all non-limiting examples of methods that can be combined with or used in conjunction with the nucleic acid molecules (e.g. DNAzymes) of the instant invention. Common chemotherapies that can be combined with nucleic acid molecules of the instant invention include various combinations of cytotoxic drugs to kill cancer cells. These drugs include but are not limited to paclitaxel (Taxol), docetaxel, cisplatin, methotrexate, cyclophosphamide, doxorubin, fluorouracil carboplatin, edatrexate, gemcitabine, vinorelbine etc. Those skilled in the art will recognize that other drug compounds and therapies can be similarly be readily combined with the nucleic acid molecules of the instant invention (e.g. DNAzyme molecules) are hence within the scope of the instant invention.

## Diagnostic uses

15 The nucleic acid molecules of this invention (e.g., enzymatic nucleic acid molecules) are used as diagnostic tools to examine genetic drift and mutations within diseased cells or to detect the presence of Ras RNA in a cell. The close relationship between enzymatic nucleic acid molecule activity and the structure of the target RNA allows the detection of mutations in any region of the molecule that alters the base-pairing and three-dimensional structure of 20 the target RNA. Using multiple enzymatic nucleic acid molecules described in this invention, one maps nucleotide changes which are important to RNA structure and function in vitro, as well as in cells and tissues. Cleavage of target RNAs with enzymatic nucleic acid molecules are used to inhibit gene expression and define the role (essentially) of specified gene products in the progression of disease. In this manner, other genetic targets are defined as important 25 mediators of the disease. These experiments lead to better treatment of the disease progression by affording the possibility of combinational therapies (e.g., multiple enzymatic nucleic acid molecules targeted to different genes, enzymatic nucleic acid molecules coupled with known small molecule inhibitors, or intermittent treatment with combinations of enzymatic nucleic acid molecules and/or other chemical or biological molecules). Other in 30 vitro uses of enzymatic nucleic acid molecules of this invention are known in the art, and include detection of the presence of mRNAs associated with Ras-related condition. Such RNA is detected by determining the presence of a cleavage product after treatment with an enzymatic nucleic acid molecule using standard methodology.

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In a specific example, enzymatic nucleic acid molecules that cleave only wild-type or mutant forms of the target RNA are used for the assay. The first enzymatic nucleic acid molecule is used to identify wild-type RNA present in the sample and the second enzymatic nucleic acid molecule is used to identify mutant RNA in the sample. As reaction controls, synthetic substrates of both wild-type and mutant RNA are cleaved by both enzymatic nucleic acid molecules to demonstrate the relative enzymatic nucleic acid molecule efficiencies in the reactions and the absence of cleavage of the "non-targeted" RNA species. The cleavage products from the synthetic substrates also serve to generate size markers for the analysis of wild-type and mutant RNAs in the sample population. Thus each analysis requires two enzymatic nucleic acid molecules, two substrates and one unknown sample which is combined into six reactions. The presence of cleavage products is determined using an RNAse protection assay so that full-length and cleavage fragments of each RNA can be analyzed in one lane of a polyacrylamide gel. It is not absolutely required to quantify the results to gain insight into the expression of mutant RNAs and putative risk of the desired phenotypic changes in target cells. The expression of mRNA whose protein product is implicated in the development of the phenotype (i.e., Ras) is adequate to establish risk. If probes of comparable specific activity are used for both transcripts, then a qualitative comparison of RNA levels will be adequate and will decrease the cost of the initial diagnosis. Higher mutant form to wild-type ratios are correlated with higher risk whether RNA levels are compared qualitatively or quantitatively. The use of enzymatic nucleic acid molecules in diagnostic applications contemplated by the instant invention is described, for example, in George et al., US Patent Nos. 5,834,186 and 5,741,679, Shih et al., US Patent No. 5,589,332, Nathan et al., US Patent No 5,871,914, Nathan and Ellington, International PCT publication No. WO 00/24931, Breaker et al., International PCT Publication Nos. WO 00/26226 and 98/27104, and Sullenger et al., International PCT publication No. WO 99/29842.

# Example 6: Identification of Potential Target Sites in Human HIV RNA

The sequence of human HIV genes are screened for accessible sites using a computer-folding algorithm. Regions of the RNA that do not form secondary folding structures and contained potential enzymatic nucleic acid molecule and/or antisense binding/cleavage sites are identified. The sequences of these binding/cleavage sites are shown in Tables VI to XI.

# Example 6: Selection of Enzymatic Nucleic Acid Cleavage Sites in Human HIV RNA

Enzymatic nucleic acid molecule target sites were chosen by analyzing sequences of Human HIV (Genbank accession No: NM\_005228) and prioritizing the sites on the basis of

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folding. Enzymatic nucleic acid molecules were designed that can bind each target and are individually analyzed by computer folding (Christoffersen et al., 1994 J. Mol. Struc. Theochem, 311, 273; Jaeger et al., 1989, Proc. Natl. Acad. Sci. USA, 86, 7706) to assess whether the enzymatic nucleic acid molecule sequences fold into the appropriate secondary structure. Those enzymatic nucleic acid molecules with unfavorable intramolecular interactions between the binding arms and the catalytic core were eliminated from consideration. As noted below, varying binding arm lengths can be chosen to optimize activity. Generally, at least 5 bases on each arm are able to bind to, or otherwise interact with, the target RNA.

# 10 <u>Example 8: Chemical Synthesis and Purification of Ribozymes and Antisense for Efficient</u> Cleavage and/or blocking of HIV Activity

Enzymatic nucleic acid molecules and antisense constructs are designed to anneal to various sites in the RNA message. The binding arms of the enzymatic nucleic acid molecules are complementary to the target site sequences described above, while the antisense constructs are fully complementary to the target site sequences described above. The enzymatic nucleic acid molecules and antisense constructs were chemically synthesized. The method of synthesis used followed the procedure for normal RNA synthesis as described above and in Usman *et al.*, (1987 J. Am. Chem. Soc., 109, 7845), Scaringe *et al.*, (1990 Nucleic Acids Res., 18, 5433) and Wincott *et al.*, supra, and made use of common nucleic acid protecting and coupling groups, such as dimethoxytrityl at the 5'-end, and phosphoramidites at the 3'-end. The average stepwise coupling yields were typically >98%.

Enzymatic nucleic acid molecules and antisense constructs are also synthesized from DNA templates using bacteriophage T7 RNA polymerase (Milligan and Uhlenbeck, 1989, Methods Enzymol. 180, 51). Enzymatic nucleic acid molecules and antisense constructs are purified by gel electrophoresis using general methods or are purified by high pressure liquid chromatography (HPLC; See Wincott et al., supra; the totality of which is hereby incorporated herein by reference) and are resuspended in water. The sequences of the chemically synthesized enzymatic nucleic acid molecules used in this study are shown below in Table XI. The sequences of the chemically synthesized antisense constructs used in this study are complementary sequences to the Substrate sequences shown below as in Tables VI to XI.

## Example 8: Enzymatic nucleic acid molecule Cleavage of HIV RNA Target in vitro

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Enzymatic nucleic acid molecules targeted to the human HIV RNA are designed and synthesized as described above. These enzymatic nucleic acid molecules are tested for cleavage activity *in vitro*, for example, using the following procedure. The target sequences and the nucleotide location within the HIV RNA are given in **Tables VI to XI**.

Cleavage Reactions: Full-length or partially full-length, internally-labeled target RNA for enzymatic nucleic acid molecule cleavage assay is prepared by in vitro transcription in the presence of [a-32p] CTP, passed over a G 50 Sephadex column by spin chromatography and used as substrate RNA without further purification. Alternately, substrates are 5'-32P-end labeled using T4 polynucleotide kinase enzyme. Assays are performed by pre-warming a 2X concentration of purified enzymatic nucleic acid molecule in enzymatic nucleic acid molecule cleavage buffer (50 mM Tris-HCl, pH 7.5 at 37°C, 10 mM MgCl<sub>2</sub>) and the cleavage reaction was initiated by adding the 2X enzymatic nucleic acid molecule mix to an equal volume of substrate RNA (maximum of 1-5 nM) that was also pre-warmed in cleavage buffer. As an initial screen, assays are carried out for 1 hour at 37°C using a final concentration of either 40 nM or 1 mM enzymatic nucleic acid molecule, i.e., enzymatic nucleic acid molecule excess. The reaction is quenched by the addition of an equal volume of 95% formamide, 20 mM EDTA, 0.05% bromophenol blue and 0.05% xylene cyanol after which the sample is heated to 95°C for 2 minutes, quick chilled and loaded onto a denaturing polyacrylamide gel. Substrate RNA and the specific RNA cleavage products generated by enzymatic nucleic acid molecule cleavage are visualized on an autoradiograph of the gel. The percentage of cleavage is determined by Phosphor Imager® quantitation of bands representing the intact substrate and the cleavage products.

## **Indications**

Particular degenerative and disease states that can be associated with HIV expression modulation include but are not limited to acquired immunodeficiency disease (AIDS) and related diseases and conditions, including but not limited to Kaposi's sarcoma, lymphoma, cervical cancer, squamous cell carcinoma, cardiac myopathy, rheumatic diseases, and opportunistic infection, for example Pneumocystis carinii, Cytomegalovirus, Herpes simplex, Mycobacteria, Cryptococcus, Toxoplasma, Progressive multifocal leucoencepalopathy (Papovavirus), Mycobacteria, Aspergillus, Cryptococcus, Candida, Cryptosporidium, Isospora belli, Microsporidia and any other diseases or conditions that are related to or will respond to the levels of HIV in a cell or tissue, alone or in combination with other therapies

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The present body of knowledge in HIV research indicates the need for methods to assay HIV activity and for compounds that can regulate HIV expression for research, diagnostic, and therapeutic use.

The use of antiviral compounds, monoclonal antibodies, chemotherapy, radiation therapy, analgesics, and/or anti-inflammatory compounds, are all non-limiting examples of a methods that can be combined with or used in conjunction with the nucleic acid molecules (e.g. ribozymes and antisense molecules) of the instant invention. Examples of antiviral compounds that can be used in conjunction with the nucleic acid molecules of the invention include but are not limited to AZT (also known as zidovudine or ZDV), ddC (zalcitabine), ddI (dideoxyinosine), d4T (stavudine), and 3TC (lamivudine) Ribavirin, delvaridine (Rescriptor), nevirapine (Viramune), efravirenz (Sustiva), ritonavir (Norvir), saquinivir (Invirase), indinavir (Crixivan), amprenivir (Agenerase), nelfinavir (Viracept), and/or lopinavir (Kaletra). Common chemotherapies that can be combined with nucleic acid molecules of the instant invention include various combinations of cytotoxic drugs to kill cancer cells. These drugs include but are not limited to paclitaxel (Taxol), docetaxel, cisplatin, methotrexate, cyclophosphamide, doxorubin, fluorouracil carboplatin, edatrexate, gemcitabine, vinorelbine etc. Those skilled in the art will recognize that other drug compounds and therapies can be similarly be readily combined with the nucleic acid molecules of the instant invention (e.g. ribozymes and antisense molecules) are hence within the scope of the instant invention.

# 20 Diagnostic uses

The nucleic acid molecules of this invention (e.g., enzymatic nucleic acid molecules) are used as diagnostic tools to examine genetic drift and mutations within diseased cells or to detect the presence of HIV RNA in a cell. The close relationship between enzymatic nucleic acid molecule activity and the structure of the target RNA allows the detection of mutations in any region of the molecule which alters the base-pairing and three-dimensional structure of the target RNA. Using multiple enzymatic nucleic acid molecules described in this invention, one maps nucleotide changes which are important to RNA structure and function in vitro, as well as in cells and tissues. Cleavage of target RNAs with enzymatic nucleic acid molecules are used to inhibit gene expression and define the role (essentially) of specified gene products in the progression of disease. In this manner, other genetic targets are defined as important mediators of the disease. These experiments lead to better treatment of the disease progression by affording the possibility of combinational therapies (e.g., multiple enzymatic nucleic acid molecules targeted to different genes, enzymatic nucleic acid molecules coupled with known small molecule inhibitors, or intermittent treatment with combinations of

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enzymatic nucleic acid molecules and/or other chemical or biological molecules). Other in vitro uses of enzymatic nucleic acid molecules of this invention are well known in the art, and include detection of the presence of mRNAs associated with HIV-related condition. Such RNA is detected by determining the presence of a cleavage product after treatment with an enzymatic nucleic acid molecule using standard methodology.

In a specific example, enzymatic nucleic acid molecules which cleave only wild-type or mutant forms of the target RNA are used for the assay. The first enzymatic nucleic acid molecule is used to identify wild-type RNA present in the sample and the second enzymatic nucleic acid molecule is used to identify mutant RNA in the sample. As reaction controls, synthetic substrates of both wild-type and mutant RNA are cleaved by both enzymatic nucleic acid molecules to demonstrate the relative enzymatic nucleic acid molecule efficiencies in the reactions and the absence of cleavage of the "non-targeted" RNA species. The cleavage products from the synthetic substrates also serve to generate size markers for the analysis of wild-type and mutant RNAs in the sample population. Thus each analysis requires two enzymatic nucleic acid molecules, two substrates and one unknown sample which is combined into six reactions. The presence of cleavage products is determined using an RNAse protection assay so that full-length and cleavage fragments of each RNA can be analyzed in one lane of a polyacrylamide gel. It is not absolutely required to quantify the results to gain insight into the expression of mutant RNAs and putative risk of the desired phenotypic changes in target cells. The expression of mRNA whose protein product is implicated in the development of the phenotype (i.e., HIV) is adequate to establish risk. If probes of comparable specific activity are used for both transcripts, then a qualitative comparison of RNA levels will be adequate and will decrease the cost of the initial diagnosis. Higher mutant form to wild-type ratios are correlated with higher risk whether RNA levels are compared qualitatively or quantitatively. The use of enzymatic nucleic acid molecules in diagnostic applications contemplated by the instant invention is more fully described in George et al., US Patent Nos. 5,834,186 and 5,741,679, Shih et al., US Patent No. 5,589,332, Nathan et al., US Patent No 5,871,914, Nathan and Ellington, International PCT publication No. WO 00/24931, Breaker et al., International PCT Publication Nos. WO 00/26226 and 98/27104, and Sullenger et al., International PCT publication No. WO 99/29842.

# Example 10: Identification of Potential Target Sites in Human HER2 RNA

The sequence of human HER2 genes were screened for accessible sites using a computer-folding algorithm. Regions of the RNA that do not form secondary folding structures and contained potential enzymatic nucleic acid molecule and/or antisense

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binding/cleavage sites were identified. The sequences of these binding/cleavage sites are shown in Tables IV and V.

# Example 10: Selection of Enzymatic Nucleic Acid Cleavage Sites in Human HER2 RNA

Enzymatic nucleic acid molecule target sites were chosen by analyzing sequences of Human HER2 (Genbank accession No: X03363) and prioritizing the sites on the basis of folding. Enzymatic nucleic acid molecules were designed that can bind each target and are individually analyzed by computer folding (Christoffersen et al., 1994 J. Mol. Struc. Theochem, 311, 273; Jaeger et al., 1989, Proc. Natl. Acad. Sci. USA, 86, 7706) to assess whether the enzymatic nucleic acid molecule sequences fold into the appropriate secondary 10 are structure. Those enzymatic nucleic acid molecules with unfavorable intramolecular interactions between the binding arms and the catalytic core were eliminated from consideration. As noted below, variable binding arm lengths are chosen to optimize activity. Generally, at least 5 bases on each arm are able to bind to, or otherwise interact with, the target RNA.

# 15 <u>Example 12: Chemical Synthesis and Purification of Ribozymes and Antisense for Efficient Cleavage and/or Blocking of HER2 Expression</u>

DNAzyme molecules are designed to anneal to various sites in the RNA message. The binding arms of the DNAzyme molecules are complementary to the target site sequences described above. The DNAzymes were chemically synthesized. The method of synthesis used followed the procedure for nucleic acid synthesis as described above and in Usman et al., (1987 J. Am. Chem. Soc., 109, 7845), Scaringe et al., (1990 Nucleic Acids Res., 18, 5433) and Wincott et al., supra, and made use of common nucleic acid protecting and coupling groups, such as dimethoxytrityl at the 5'-end, and phosphoramidites at the 3'-end. The average stepwise coupling yields were typically >98%. The sequences of the chemically synthesized DNAzyme molecules used in this study are shown below in **Table V**.

#### Example 13: DNAzyme Cleavage of HER2 RNA Target in vitro

DNAzymes targeted to the human HER2 RNA are designed and synthesized as described above. These enzymatic nucleic acid molecules can be tested for cleavage activity in vitro, for example, using the following procedure. The target sequences and the nucleotide location within the HER2 RNA are given in **Tables IV** and **V**.

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#### Cleavage Reactions:

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Ribozymes and substrates were synthesized in 96-well format using 0.2 µmol scale. Substrates were 5'-32P labeled and gel purified using 7.5% polyacrylamide gels, and eluting into water. Assays were done by combining trace substrate with 500nM Ribozyme or greater, and initiated by adding final concentrations of 40mM Mg<sup>+2</sup>, and 50mM Tris-Cl pH 8.0. For each ribozyme/substrate combination a control reaction was done to ensure cleavage was not the result of non-specific substrate degradation. A single three hour time point was taken and run on a 15% polyacrylamide gel to asses cleavage activity. Gels were dried and scanned using a Molecular Dynamics Phosphorimager and quantified using Molecular Dynamics ImageQuant software. Percent cleaved was determined by dividing values for cleaved substrate bands by full-length (uncleaved) values plus cleaved values and multiplying by 100 (cleaved=[C/(U+C)]\*100).

# Example 14: DNAzyme Cleavage of HER2 RNA Target in vivo

#### Cell Culture Review

The greatest HER2 specific effects have been observed in cancer cell lines that express high levels of HER2 protein (as measured by ELISA). Specifically, in one study that treated five human breast cancer cell lines with the HER2 antibody (anti-erbB2-sFv), the greatest inhibition of cell growth was seen in three cell lines (MDA-MB-361, SKBR-3 and BT-474) that express high levels of HER2 protein. No inhibition of cell growth was observed in two cell lines (MDA-MB-231 and MCF-7) that express low levels of HER2 protein (Wright, M., Grim, J., Deshane, J., Kim, M., Strong, T.V., Siegel, G.P., Curiel, D.T. (1997) An intracellular anti-erbB-2 single-chain antibody is specifically cytotoxic to human breast carcinoma cells overexpressing erbB-2. Gene Therapy 4: 317-322). successfully used SKBR-3 cells to show HER2 antisense oligonucleotide-mediated inhibition of HER2 protein expression and HER2 RNA knockdown (Vaughn, J.P., Iglehart, J.D., Demirdji, S., Davis, P., Babiss, L.E., Caruthers, M.H., Marks, J.R. (1995) Antisense DNA downregulation of the ERBB2 oncogene measured by a flow cytometric assay. Proc Natl Acad Sci USA 92: 8338-8342). Other groups have also demonstrated a decrease in the levels of HER2 protein, HER2 mRNA and/or cell proliferation in cultured cells using anti-HER2 DNAzymes or antisense molecules (Suzuki T., Curcio, L.D., Tsai, J. and Kashani-Sabet M. 30 (1997) Anti-c-erb-B-2 Ribozyme for Breast Cancer. In Methods in Molecular Medicine, Vol. 11, Therapeutic Applications of Ribozmes, Human Press, Inc., Totowa, NJ; Weichen, K., Zimmer, C. and Dietel, M. (1997) Selection of a high activity c-erbB-2 ribozyme using a

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fusion gene of c-erbB-2 and the enhanced green fluorescent protein. Cancer Gene Therapy 5: 45-51; Czubayko, F., Downing, S.G., Hsieh, S.S., Goldstein, D.J., Lu P.Y., Trapnell, B.C. and Wellstein, A. (1997) Adenovirus-mediated transduction of ribozymes abrogates HER-2/neu and pleiotrophin expression and inhibits tumor cell proliferation. Gene Ther. 4: 943-949; Colomer, R., Lupu, R., Bacus, S.S. and Gelmann, E.P. (1994) erbB-2 antisense oligonucloetides inhibit the proliferation of breast carcinoma cells with erbB-2 oncogene amplification. British J. Cancer 70: 819-825; Betram et al., 1994). Because cell lines that express higher levels of HER2 have been more sensitive to anti-HER2 agents, we prefer using several medium to high expressing cell lines, including SKBR-3 and T47D, for DNAzyme screens in cell culture.

A variety of endpoints have been used in cell culture models to look at HER2-mediated effects after treatment with anti-HER2 agents. Phenotypic endpoints include inhibition of cell proliferation, apoptosis assays and reduction of HER2 protein expression. Because overexpression of HER2 is directly associated with increased proliferation of breast and ovarian tumor cells, a proliferation endpoint for cell culture assays will preferably be used as the primary screen. There are several methods by which this endpoint can be measured. Following treatment of cells with DNAzymes, cells are allowed to grow (typically 5 days) after which either the cell viability, the incorporation of [<sup>3</sup>H] thymidine into cellular DNA and/or the cell density can be measured. The assay of cell density is very straightforward and can be done in a 96-well format using commercially available fluorescent nucleic acid stains (such as Syto® 13 or CyQuant®). The assay using CyQuant® is described herein and is currently being employed to screen ~100 DNAzymes targeting HER2 (details below).

As a secondary, confirmatory endpoint a DNAzyme-mediated decrease in the level of HER2 protein expression can be evaluated using a HER2-specific ELISA.

## 25 Validation of Cell Lines and DNAzyme Treatment Conditions

Two human breast cancer cell lines (T47D and SKBR-3) that are known to express medium to high levels of HER2 protein, respectively, are considered for DNAzyme screening. In order to validate these cell lines for HER2-mediated sensitivity, both cell lines are treated with the HER2 specific antibody, Herceptin® (Genentech) and its effect on cell proliferation is determined. Herceptin® is added to cells at concentrations ranging from 0-8 µM in medium containing either no serum (OptiMem), 0.1% or 0.5% FBS and efficacy is determined via cell proliferation. Maximal inhibition of proliferation (~50%) in both cell lines is typically observed after addition of Herceptin® at 0.5 nM in medium containing 0.1%

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or no FBS. The fact that both cell lines are sensitive to an anti-HER2 agent (Herceptin®) supports their use in experiments testing anti-HER2 DNAzymes.

Prior to DNAzyme screening, the choice of the optimal lipid(s) and conditions for DNAzyme delivery is determined empirically for each cell line. Applicant has established a panel of cationic lipids (lipids as described in PCT application WO99/05094) that can be used to deliver DNAzymes to cultured cells and are very useful for cell proliferation assays that are typically 3-5 days in length. (Additional description of useful lipids is provided above, and those skilled in the art are also familiar with a variety of lipids that can be used for delivery of oligonucleotide to cells in culture.) Initially, this panel of lipid delivery vehicles is screened in SKBR-3 and T47D cells using previously established control oligonucleotides. Specific lipids and conditions for optimal delivery are selected for each cell line based on these screens. These conditions are used to deliver HER2 specific DNAzymes to cells for primary (inhibition of cell proliferation) and secondary (decrease in HER2 protein) efficacy endpoints.

# Primary Screen: Inhibition of Cell Proliferation

DNAzyme screens are performed using an automated, high throughput 96-well cell proliferation assay. Cell proliferation is measured over a 5-day treatment period using the nucleic acid stain CyQuant® for determining cell density. The growth of cells treated with DNAzyme/lipid complexes is compared to both untreated cells and to cells treated with Scrambled-arm Attenuated core Controls. SACs can no longer bind to the target site due to the scrambled arm sequence and have nucleotide changes in the core that greatly diminish DNAzyme cleavage. These SACs are used to determine non-specific inhibition of cell growth caused by DNAzyme chemistry (i.e. multiple 2' O—Me modified nucleotides and a 3' inverted abasic). Lead DNAzymes are chosen from the primary screen based on their ability to inhibit cell proliferation in a specific manner. Dose response assays are carried out on these leads and a subset was advanced into a secondary screen using the level of HER2 protein as an endpoint.

# Secondary Screen: Decrease in HER2 Protein and/or RNA

A secondary screen that measures the effect of anti-HER2 DNAzymes on HER2 protein and/or RNA levels is used to affirm preliminary findings. A robust HER2 ELISA for both T47D and SKBR-3 cells has been established and is available for use as an additional endpoint. In addition, a real time RT-PCR assay (TaqMan assay) has been developed to assess HER2 RNA reduction compared to an actin RNA control. Dose response activity of

nucleic acid molecules of the instant invention can be used to assess both HER2 protein and RNA reduction endpoints.

#### DNAzyme Mechanism Assays

A TaqMan® assay for measuring the DNAzyme-mediated decrease in HER2 RNA has also been established. This assay is based on PCR technology and can measure in real time the production of HER2 mRNA relative to a standard cellular mRNA such as GAPDH. This RNA assay is used to establish proof that lead DNAzymes are working through an RNA cleavage mechanism and result in a decrease in the level of HER2 mRNA, thus leading to a decrease in cell surface HER2 protein receptors and a subsequent decrease in tumor cell proliferation.

#### Animal Models

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Evaluating the efficacy of anti-HER2 agents in animal models is an important prerequisite to human clinical trials. As in cell culture models, the most HER2 sensitive mouse tumor xenografts are those derived from human breast carcinoma cells that express high levels of HER2 protein. In a recent study, nude mice bearing BT-474 xenografts were sensitive to the anti-HER2 humanized monoclonal antibody Herceptin®, resulting in an 80% inhibition of tumor growth at a 1 mg kg dose (ip, 2 X week for 4-5 weeks). eradication was observed in 3 of 8 mice treated in this manner (Baselga, J., Norton, L. Albanell, J., Kim, Y.M. and Mendelsohn, J. (1998) Recombinant humanized anti-HER2 antibody (Herceptin) enhances the antitumor activity of paclitaxel and doxorubicin against HER2/neu overexpressing human breast cancer xenografts. Cancer Res. 15: 2825-2831). This same study compared the efficacy of Herceptin® alone or in combination with the commonly used chemotherapeutics, paclitaxel or doxorubicin. Although, all three anti-HER2 agents caused modest inhibition of tumor growth, the greatest antitumor activity was produced by the combination of Herceptin® and paclitaxel (93% inhibition of tumor growth vs 35% with paclitaxel alone). The above studies provide proof that inhibition of HER2 expression by anti-HER2 agents causes inhibition of tumor growth in animals. Lead anti-HER2 DNAzymes chosen from in vitro assays are further tested in mouse xenograft models. DNAzymes are first tested alone and then in combination with standard chemotherapies.

#### 30 Animal Model Development

Three human breast tumor cell lines (T47D, SKBR-3 and BT-474) were characterized to establish their growth curves in mice. These three cell lines have been implanted into the

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mammary papillae of both nude and SCID mice and primary tumor volumes are measured 3 times per week. Growth characteristics of these tumor lines using a Matrigel implantation format can also be established. The use of two other breast cell lines that have been engineered to express high levels of HER2 can also be used in the described studies. The tumor cell line(s) and implantation method that supports the most consistent and reliable tumor growth is used in animal studies testing the lead HER2 DNAzyme(s). DNAzymes are administered by daily subcutaneous injection or by continuous subcutaneous infusion from Alzet mini osmotic pumps beginning 3 days after tumor implantation and continuing for the duration of the study. Group sizes of at least 10 animals are employed. Efficacy is determined by statistical comparison of tumor volume of DNAzyme-treated animals to a control group of animals treated with saline alone. Because the growth of these tumors is generally slow (45-60 days), an initial endpoint is the time in days it takes to establish an easily measurable primary tumor (i.e. 50-100 mm<sup>3</sup>) in the presence or absence of DNAzyme treatment.

## 15 Clinical Summary

#### Overview

Breast cancer is a common cancer in women and also occurs in men to a lesser degree. The incidence of breast cancer in the United States is ~180,000 cases per year and ~46,000 die each year of the disease. In addition, 21,000 new cases of ovarian cancer per year lead to ~13,000 deaths (data from Hung, M.-C., Matin, A., Zhang, Y., Xing, X., Sorgi, F., Huang, L. and Yu, D. (1995) HER-2/neu-targeting gene therapy - a review. *Gene* 159: 65-71 and the Surveillance, Epidemiology and End Results Program, NCI Surveillance, Epidemiology and End Results Program (SEER) Cancer Statistics Review: http://www.seer.ims.nci.nih.gov/Publications/CSR1973\_1996/). Ovarian cancer is a potential secondary indication for anti-HER2 DNAzyme therapy.

A full review of breast cancer is given in the NCI PDQ for Breast Cancer (NCI PDQ/Treatment/Health Professionals/Breast Cancer: http://cancernet.nci.nih.gov/clinpdq/soa/Breast\_cancer\_Physician.html; NCI PDQ/Treatment/Patients/Breast Cancer:

30 http://cancernet.nci.nih.gov/clinpdq/pif/Breast\_cancer\_Patient.html). A brief overview is given here. Breast cancer is evaluated or "staged" on the basis of tumor size, and whether it has spread to lymph nodes and/or other parts of the body. In Stage I breast cancer, the cancer

is no larger than 2 centimeters and has not spread outside of the breast. In Stage II, the patient's tumor is 2-5 centimeters but cancer may have spread to the axillary lymph nodes. By Stage III, metastasis to the lymph nodes is typical, and tumors are  $\geq$  5 centimeters. Additional tissue involvement (skin, chest wall, ribs, muscles *etc.*) may also be noted. Once cancer has spread to additional organs of the body, it is classed as Stage IV.

Almost all breast cancers (>90%) are detected at Stage I or II, but 31% of these are already lymph node positive. The 5-year survival rate for node negative patients (with standard surgery/radiation/chemotherapy /hormone regimens) is 97%; however, involvement of the lymph nodes reduces the 5-year survival to only 77%. Involvement of other organs (≥Stage III) drastically reduces the overall survival, to 22% at 5 years. Thus, chance of recovery from breast cancer is highly dependent on early detection. Because up to 10% of breast cancers are hereditary, those with a family history are considered to be at high risk for breast cancer and should be monitored very closely.

#### Therapy

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Breast cancer is highly treatable and often curable when detected in the early stages. (For a complete review of breast cancer treatments, see the NCI PDQ for Breast Cancer.) Common therapies include surgery, radiation therapy, chemotherapy and hormonal therapy. Depending upon many factors, including the tumor size, lymph node involvement and location of the lesion, surgical removal varies from lumpectomy (removal of the tumor and some surrounding tissue) to mastectomy (removal of the breast, lymph nodes and some or all of the underlying chest muscle). Even with successful surgical resection, as many as 21% of the patients may ultimately relapse (10-20 years). Thus, once local disease is controlled by surgery, adjuvant radiation treatments, chemotherapies and/or hormonal therapies are typically used to reduce the rate of recurrence and improve survival. The therapy regimen employed depends not only on the stage of the cancer at its time of removal, but other variables such the type of cancer (ductal or lobular), whether lymph nodes were involved and removed, age and general health of the patient and if other organs are involved.

Common chemotherapies include various combinations of cytotoxic drugs to kill the cancer cells. These drugs include paclitaxel (Taxol), docetaxel, cisplatin, methotrexate, cyclophosphamide, doxorubin, fluorouracil etc. Significant toxicities are associated with these cytotoxic therapies. Well-characterized toxicities include nausea and vomiting,

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myelosuppression, alopecia and mucosity. Serious cardiac problems are also associated with certain of the combinations, e.g. doxorubin and paclitaxel, but are less common.

Testing for estrogen and progesterone receptors helps to determine whether certain anti-hormone therapies might be helpful in inhibiting tumor growth. If either or both receptors are present, therapies to interfere with the action of the hormone ligands, can be given in combination with chemotherapy and are generally continued for several years. These adjuvant therapies are called SERMs, selective estrogen receptor modulators, and they can give beneficial estrogen-like effects on bone and lipid metabolism while antagonizing estrogen in reproductive tissues. Tamoxifen is one such compound. The primary toxic effect associated with the use of tamoxifen is a 2 to 7-fold increase in the rate of endometrial cancer. Blood clots in the legs and lung and the possibility of stroke are additional side effects. However, tamoxifen has been determined to reduce breast cancer incidence by 49% in high-risk patients and an extensive, somewhat controversial, clinical study is underway to expand the prophylactic use of tamoxifen. Another SERM, raloxifene, was also shown to reduce the incidence of breast cancer in a large clinical trial where it was being used to treat osteoporosis. In additional studies, removal of the ovaries and/or drugs to keep the ovaries from working are being tested.

Bone marrow transplantation is being studied in clinical trials for breast cancers that have become resistant to traditional chemotherapies or where >3 lymph nodes are involved. Marrow is removed from the patient prior to high-dose chemotherapy to protect it from being destroyed, and then replaced after the chemotherapy. Another type of "transplant" involves the exogenous treatment of peripheral blood stem cells with drugs to kill cancer cells prior to replacing the treated cells in the bloodstream.

One biological treatment, a humanized monoclonal anti-HER2 antibody, Herceptin® (Genentech) has been approved by the FDA as an additional treatment for HER2 positive tumors. Herceptin® binds with high affinity to the extracellular domain of HER2 and thus blocks its signaling action. Herceptin® can be used alone or in combination with chemotherapeutics (*i.e.* paclitaxel, docetaxel, cisplatin, *etc.*) (Pegram, M.D., Lipton, A., Hayes, D.F., Weber, B.L., Baselga, J.M., Tripathy, D., Baly, D., Baughman, S.A., Twaddell, T., Glaspy, J.A. and Slamon, D.J. (1998) Phase II study of receptor-enhanced chemosensitivity using recombinant humanized anti-p185HER2/neu monoclonal antibody plus cisplatin in patients with HER2/neu-overexpressing metastatic breast cancer refractory to chemotherapy treatment. *J. Clin. Oncol.* 16: 2659-2671). In Phase III studies, Herceptin® significantly improved the response rate to chemotherapy as well as improving the time to

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progression (Ross, J.S. and Fletcher, J.A. (1998) The HER-2/neu oncogene in breast cancer: Prognostic factor, predictive factor and target for therapy. *Oncologist* 3: 1998). The most common side effects attributed to Herceptin® are fever and chills, pain, asthenia, nausea, vomiting, increased cough, diarrhea, headache, dyspnea, infection, rhinitis, and insomnia. Herceptin® in combination with chemotherapy (paclitaxel) can lead to cardiotoxicity (Sparano, J.A. (1999) Doxorubicin/taxane combinations: Cardiac toxicity and pharmacokinetics. *Semin. Oncol.* 26: 14-19), leukopenia, anemia, diarrhea, abdominal pain and infection.

#### HER2 Protein Levels for Patient Screening and as a Potential Endpoint

Because elevated HER2 levels can be detected in at least 30% of breast cancers, breast cancer patients can be pre-screened for elevated HER2 prior to admission to initial clinical trials testing an anti-HER2 DNAzyme. Initial HER2 levels can be determined (by ELISA) from tumor biopsies or resected tumor samples.

During clinical trials, it may be possible to monitor circulating HER2 protein by ELISA (Ross and Fletcher, 1998). Evaluation of serial blood/serum samples over the course of the anti-HER2 DNAzyme treatment period could be useful in determining early indications of efficacy. In fact, the clinical course of Stage IV breast cancer was correlated with shed HER2 protein fragment following a dose-intensified paclitaxel monotherapy. In all responders, the HER2 serum level decreased below the detection limit (Luftner, D., Schnabel. S. and Possinger, K. (1999) c-erbB-2 in serum of patients receiving fractionated paclitaxel chemotherapy. *Int. J. Biol. Markers* 14: 55-59).

Two cancer-associated antigens, CA27.29 and CA15.3, can also be measured in the serum. Both of these glycoproteins have been used as diagnostic markers for breast cancer. CA27.29 levels are higher than CA15.3 in breast cancer patients; the reverse is true in healthy individuals. Of these two markers, CA27.29 was found to better discriminate primary cancer from healthy subjects. In addition, a statistically significant and direct relationship was shown between CA27.29 and large vs small tumors and node postive vs node negative disease (Gion, M., Mione, R., Leon, A.E. and Dittadi, R. (1999) Comparison of the diagnostic accuracy of CA27.29 and CA15.3 in primary breast cancer. Clin. Chem. 45: 630-637). Moreover, both cancer antigens were found to be suitable for the detection of possible metastases during follow-up (Rodriguez de Paterna, L., Arnaiz, F., Estenoz, J. Ortuno, B. and Lanzos E. (1999) Study of serum tumor markers CEA, CA15.3, CA27.29 as diagnostic parameters in patients with breast carcinoma. Int. J. Biol. Markers 10: 24-29). Thus,

blocking breast tumor growth may be reflected in lower CA27.29 and/or CA15.3 levels compared to a control group. FDA submissions for the use of CA27.29 and CA15.3 for monitoring metastatic breast cancer patients have been filed (reviewed in Beveridge, R.A. (1999) Review of clinical studies of CA27.29 in breast cancer management. *Int. J. Biol. Markers* 14: 36-39). Fully automated methods for measurement of either of these markers are commercially available.

#### **Indications**

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Particular degenerative and disease states that can be associated with HER2 expression modulation include but are not limited to cancer, for example breast cancer and ovarian cancer and/or any other diseases or conditions that are related to or will respond to the levels of HER2 in a cell or tissue, alone or in combination with other therapies

The present body of knowledge in HER2 research indicates the need for methods to assay HER2 activity and for compounds that can regulate HER2 expression for research, diagnostic, and therapeutic use.

The use of monoclonal antibodies, chemotherapy, radiation therapy, and analgesics, are all non-limiting examples of methods that can be combined with or used in conjunction with the nucleic acid molecules (e.g. DNAzymes) of the instant invention. Common chemotherapies that can be combined with nucleic acid molecules of the instant invention include various combinations of cytotoxic drugs to kill cancer cells. These drugs include but are not limited to paclitaxel (Taxol), docetaxel, cisplatin, methotrexate, cyclophosphamide, doxorubin, fluorouracil carboplatin, edatrexate, gemcitabine, vinorelbine etc. Those skilled in the art will recognize that other drug compounds and therapies can be similarly be readily combined with the nucleic acid molecules of the instant invention (e.g. DNAzyme molecules) are hence within the scope of the instant invention.

### 25 <u>Diagnostic uses</u>

The nucleic acid molecules of this invention (e.g., enzymatic nucleic acid molecules) can be used as diagnostic tools to examine genetic drift and mutations within diseased cells or to detect the presence of HER2 RNA in a cell. The close relationship between enzymatic nucleic acid molecule activity and the structure of the target RNA allows the detection of mutations in any region of the molecule that alters the base-pairing and three-dimensional structure of the target RNA. By using multiple enzymatic nucleic acid molecules described in this invention, one can map nucleotide changes which are important to RNA structure and

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function in vitro, as well as in cells and tissues. Cleavage of target RNAs with enzymatic nucleic acid molecules can be used to inhibit gene expression and define the role (essentially) of specified gene products in the progression of disease. In this manner, other genetic targets can be defined as important mediators of the disease. These experiments can lead to better treatment of the disease progression by affording the possibility of combinational therapies (e.g., multiple enzymatic nucleic acid molecules targeted to different genes, enzymatic nucleic acid molecules coupled with known small molecule inhibitors, or intermittent treatment with combinations of enzymatic nucleic acid molecules and/or other chemical or biological molecules). Other in vitro uses of enzymatic nucleic acid molecules of this invention are well known in the art, and include detection of the presence of mRNAs associated with HER2-related condition. Such RNA is detected by determining the presence of a cleavage product after treatment with an enzymatic nucleic acid molecule using standard methodology.

In a specific example, enzymatic nucleic acid molecules that cleave only wild-type or mutant forms of the target RNA are used for the assay. The first enzymatic nucleic acid molecule is used to identify wild-type RNA present in the sample and the second enzymatic nucleic acid molecule is used to identify mutant RNA in the sample. As reaction controls, synthetic substrates of both wild-type and mutant RNA are cleaved by both enzymatic nucleic acid molecules to demonstrate the relative enzymatic nucleic acid molecule efficiencies in the reactions and the absence of cleavage of the "non-targeted" RNA species. The cleavage products from the synthetic substrates also serve to generate size markers for the analysis of wild-type and mutant RNAs in the sample population. Thus each analysis requires two enzymatic nucleic acid molecules, two substrates and one unknown sample which is combined into six reactions. The presence of cleavage products is determined using an RNAse protection assay so that full-length and cleavage fragments of each RNA can be analyzed in one lane of a polyacrylamide gel. It is not absolutely required to quantify the results to gain insight into the expression of mutant RNAs and putative risk of the desired phenotypic changes in target cells. The expression of mRNA whose protein product is implicated in the development of the phenotype (i.e., HER2) is adequate to establish risk. If probes of comparable specific activity are used for both transcripts, then a qualitative comparison of RNA levels will be adequate and will decrease the cost of the initial diagnosis. Higher mutant form to wild-type ratios are correlated with higher risk whether RNA levels are compared qualitatively or quantitatively. The use of enzymatic nucleic acid molecules in diagnostic applications contemplated by the instant invention is more fully described in George et al., US Patent Nos. 5,834,186 and 5,741,679, Shih et al., US Patent No. 5,589,332, Nathan et al., US Patent No 5,871,914, Nathan and Ellington, International PCT publication

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No. WO 00/24931, Breaker et al., International PCT Publication Nos. WO 00/26226 and 98/27104, and Sullenger et al., International PCT publication No. WO 99/29842.

## Additional Uses

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Potential uses of sequence-specific enzymatic nucleic acid molecules of the instant invention can have many of the same applications for the study of RNA that DNA restriction endonucleases have for the study of DNA (Nathans et al., 1975 Ann. Rev. Biochem. 44:273). For example, the pattern of restriction fragments can be used to establish sequence relationships between two related RNAs, and large RNAs can be specifically cleaved to fragments of a size more useful for study. The ability to engineer sequence specificity of the enzymatic nucleic acid molecule is ideal for cleavage of RNAs of unknown sequence. Applicant has described the use of nucleic acid molecules to modulate gene expression of target genes in bacterial, microbial, fungal, viral, and eukaryotic systems including plant or mammalian cells.

All patents and publications mentioned in the specification are indicative of the levels of skill of those skilled in the art to which the invention pertains. All references cited in this disclosure are incorporated by reference to the same extent as if each reference had been incorporated by reference in its entirety individually.

One skilled in the art would readily appreciate that the present invention is well adapted to carry out the objects and obtain the ends and advantages mentioned, as well as those inherent therein. The methods and compositions described herein as presently representative of preferred embodiments are exemplary and are not intended as limitations on the scope of the invention. Changes therein and other uses will occur to those skilled in the art, which are encompassed within the spirit of the invention, are defined by the scope of the claims.

It will be readily apparent to one skilled in the art that varying substitutions and modifications can be made to the invention disclosed herein without departing from the scope and spirit of the invention. Thus, such additional embodiments are within the scope of the present invention and the following claims.

The invention illustratively described herein suitably can be practiced in the absence of any element or elements, limitation or limitations which is not specifically disclosed herein. Thus, for example, in each instance herein any of the terms "comprising", "consisting

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essentially of' and "consisting of" can be replaced with either of the other two terms. The terms and expressions that have been employed are used as terms of description and not of limitation, and there is no intention that in the use of such terms and expressions of excluding any equivalents of the features shown and described or portions thereof, but it is recognized that various modifications are possible within the scope of the invention claimed. Thus, it should be understood that although the present invention has been specifically disclosed by preferred embodiments, optional features, modification and variation of the concepts herein disclosed can be resorted to by those skilled in the art, and that such modifications and variations are considered to be within the scope of this invention as defined by the description and the appended claims.

In addition, where features or aspects of the invention are described in terms of Markush groups or other grouping of alternatives, those skilled in the art will recognize that the invention is also thereby described in terms of any individual member or subgroup of members of the Markush group or other group.

Other embodiments are within the claims that follow.

# Table I:

A 2.5 µmol Synthesis Cycle ABI 394 Instrument

Reagent	Equivalents	Amount	Wait Time* DNA	Wait Time* 2'-O-methyl	Wait Time*RNA
	C.F.	163 µL	45 sec ·	2.5 min	7.5 min
Phosphoramidites	6.5	238 µL	45 sec	2.5 min	7.5 min
S-Ethyl Tetrazole	100	233 µL	5 sec	5 sec	5 sec
Acetic Anhydride N-Methyl	186	233 µL	5 sec	5 sec	5 sec
Imidazole				21 sec	21 sec
TCA	176	2.3 mL	21 sec	45 sec	45 sec
lodine	11.2	1.7 mL	45 sec	300 sec	300 sec
Beaucage	12.9	645 µL	100 sec		NA NA
Acetonitrile	NA	6.67 mL	NA	NA	1100

B. 0.2 µmol Synthesis Cycle ABI 394 Instrument

Reagent	Equivalents	Amount	wait Time* DNA	Wait Time* 2'-O-methyl	Wait Time*RNA
Phosphoramidites	15	31 µL	45 sec	233 sec	465 sec
S-Ethyl Tetrazole	38.7	31 µL	45 sec	233 min	465 sec
Acetic Anhydride	655	124 µL	5 sec	5 sec	5 sec
N-Methyl Imidazole	1245	124 µL	5 sec	5 sec	5 sec
TCA	700	732 µL	10 sec	10 sec	10 sec
lodine	20.6	244 µL	15 sec	15 sec	15 sec
	7.7	232 µL	100 sec	300 sec	300 sec
Beaucage Acetonitrile	NA NA	2.64 mL	NA	NA	NA

C. 0.2 µmol Synthesis Cycle 96 well Instrument

Reagent	Equivalents:DNA/ 2'-O-methyl/Ribo	Amount: DNA/2'-O- methyl/Ribo	Wait Time* DNA	Wait Time* 2'-O- methyl	Wait Time* Ribo
	2 0 111011191111111			450	360sec
Phosphoramidites	22/33/66	40/60/120 μL	60 sec	180 sec	
S-Ethyl Tetrazole	70/105/210	40/60/120 μL	60 sec	180 min	360 sec
	265/265/265	50/50/50 µL	10 sec	10 sec	10 sec
Acetic Anhydride		50/50/50 µL	10 sec	10 sec	10 sec
N-Methyl Imidazole	502/502/502	20/20/20 PE			<u> </u>
	238/475/475	250/500/500 µL	15 sec	15 sec	15 sec
TCA	<del> </del>	80/80/80 µL	30 sec	30 sec	30 sec
lodine	6.8/6.8/6.8	<del></del>	100 sec	200 sec	200 sec
Beaucage	34/51/51	80/120/120			<del></del>
Acetonitrile	NA	1150/1150/1150 µL	NA	NA NA	NA

Wait time does not include contact time during delivery.

Table II: Human K-Ras DNAzyme and Substrate Sequence

		Seq	·	Seg
Pos	Substrate	ID	DNAzyme	ID
10	CCUAGGCG G CGGCCGCG	1	CGCGGCCG GGCTAGCTACAACGA CGCCTAGG	2329
13	AGGCGGCG G CCGCGGCG	2	CGCCGCGG GGCTAGCTACAACGA CGCCGCCT	2330
16	CGGCGGCC G CGGCGCG	з	CGCCGCCG GGCTAGCTACAACGA GGCCGCCG	2331
19	CGGCCGCG G CGGCGGAG	4	CTCCGCCG GGCTAGCTACAACGA CGCGGCCG	2332
22	CCGCGGCG G CGGAGGCA	5	TGCCTCCG GGCTAGCTACAACGA CGCCGCGG	2333
28	CGGCGGAG G CAGCAGCG	6	CGCTGCTG GGCTAGCTACAACGA CTCCGCCG	2334
31	CGGAGGCA G CAGCGGCG	7	CGCCGCTG GGCTAGCTACAACGA TGCCTCCG	2335
34	AGGCAGCA G CGGCGGCG	8	CGCCGCCG GGCTAGCTACAACGA TGCTGCCT	2336
37	CAGCAGCG G CGGCGGCA	9	TGCCGCCG GGCTAGCTACAACGA CGCTGCTG	2337
40	CAGCGGCG G CGGCAGUG	10	CACTGCCG GGCTAGCTACAACGA CGCCGCTG	2338
43	CGGCGGCG G CAGUGGCG	11	CGCCACTG GGCTAGCTACAACGA CGCCGCCG	2339
46	CGGCGGCA G UGGCGGCG	12	CGCCGCCA GGCTAGCTACAACGA TGCCGCCG	2340
49	CGGCAGUG G CGGCGGCG	13	CGCCGCCG GGCTAGCTACAACGA CACTGCCG	2341
52	CAGUGGCG G CGGCGAAG	14	CTTCGCCG GGCTAGCTACAACGA CGCCACTG	2342
55	UGGCGGCG G CGAAGGUG	15	CACCTTCG GGCTAGCTACAACGA CGCCGCCA	2343
61	CGGCGAAG G UGGCGGCG	16	CGCCGCCA GGCTAGCTACAACGA CTTCGCCG	2344
64	CGAAGGUG G CGGCGGCU	17	AGCCGCCG GGCTAGCTACAACGA CACCTTCG	2345
67	AGGUGGCG G CGGCUCGG	18	CCGAGCCG GGCTAGCTACAACGA CGCCACCT	2346
70	UGGCGGCG G CUCGGCCA	19	· TGGCCGAG GGCTAGCTACAACGA CGCCGCCA	2347
75	GCGGCUCG G CCAGUACU	20	AGTACTGG GGCTAGCTACAACGA CGAGCCGC	2348
79	CUCGGCCA G UACUCCCG	21	CGGGAGTA GGCTAGCTACAACGA TGGCCGAG	2349
81	CGGCCAGU A CUCCCGGC	22	GCCGGGAG GGCTAGCTACAACGA ACTGGCCG	2350
88	UACUCCCG G CCCCCGCC	23	GGCGGGG GGCTAGCTACAACGA CGGGAGTA	2351
94	CGGCCCCC G CCAUTUCG	24	CGAAATGG GGCTAGCTACAACGA GGGGGCCG	2352
97	CCCCCGCC A UUUCGGAC	25	GTCCGAAA GGCTAGCTACAACGA GGCGGGGG	2353
104	CAUUUCGG A CUGGGAGC	26	GCTCCCAG GGCTAGCTACAACGA CCGAAATG	2354
111	GACUGGGA G CGAGCGCG	27	CGCGCTCG GGCTAGCTACAACGA TCCCAGTC	2355
115	GGGAGCGA G CGCGGCGC	28	GCGCCGCG GGCTAGCTACAACGA TCGCTCCC	2356
117	GAGCGAGC G CGGCGCAG	29	CTGCGCCG GGCTAGCTACAACGA GCTCGCTC	2357
120	CGAGCGCG G CGCAGGCA	30	TGCCTGCG GGCTAGCTACAACGA CGCGCTCG	2358
122	AGCGCGGC G CAGGCACU	31	AGTGCCTG GGCTAGCTACAACGA GCCGCGCT	2359
126	CGGCGCAG G CACUGAAG	32	CTTCAGTG GGCTAGCTACAACGA CTGCGCCG	2360
128	GCGCAGGC A CUGAAGGC	33	GCCTTCAG GGCTAGCTACAACGA GCCTGCGC	2361
135	CACUGAAG G CGGCGGCG	34	CGCCGCCG GGCTAGCTACAACGA CTTCAGTG	2362
138	UGAAGGCG G CGGCGGGG	35	CCCCGCCG GGCTAGCTACAACGA CGCCTTCA	2363
141	AGGCGGCG G CGGGGCCA	36	TGGCCCCG GGCTAGCTACAACGA CGCCGCCT	2364
146	GCGGCGGG G CCAGAGGC	37	GCCTCTGG GGCTAGCTACAACGA CCCGCCGC	2365
153	GGCCAGAG G CUCAGCGG	38	CCGCTGAG GGCTAGCTACAACGA CTCTGGCC	2366
158	GAGGCUCA G CGGCUCCC	39	GGGAGCCG GGCTAGCTACAACGA TGAGCCTC	2367
161	GCUCAGCG G CUCCCAGG	40	CCTGGGAG GGCTAGCTACAACGA CGCTGAGC	2368
169	GCUCCCAG G UGCGGGAG	41	CTCCCGCA GGCTAGCTACAACGA CTGGGAGC	2369
171	UCCCAGGU G CGGGAGAG	42	CTCTCCCG GGCTAGCTACAACGA ACCTGGGA	2370
182	GGAGAGAG G CCUGCUGA	43	TCAGCAGG GGCTAGCTACAACGA CTCTCTCC	2371
186	AGAGGCCU G CUGAAAAU	44	ATTITCAG GGCTAGCTACAACGA AGGCCTCT	2372
193	UGCUGAAA A UGACUGAA	45	TTCAGTCA GGCTAGCTACAACGA TTTCAGCA	2373
196	UGAAAAUG A CUGAAUAU	46	ATATTCAG GGCTAGCTACAACGA CATTTTCA	2374
201	AUGACUGA A UAUAAACU	47	AGTTTATA GGCTAGCTACAACGA TCAGTCAT	2375
203	GACUGAAU A UAAACUUG	48	CAAGTTTA GGCTAGCTACAACGA ATTCAGTC	2376

207	GAAUAUAA A CUUGUGGU	49	ACCACAAG GGCTAGCTACAACGA TTATATTC	2377
211	AUAAACUU G UGGUAGUU	50	AACTACCA GGCTAGCTACAACGA AAGTTTAT	2378
214	AACUUGUG G UAGUUGGA	51	TCCAACTA GGCTAGCTACAACGA CACAAGTT	2379
217	UUGUGGUA G UUGGAGCU	52	AGCTCCAA GGCTAGCTACAACGA TACCACAA	2380
223	UAGUUGGA G CUUGUGGC	53	GCCACAAG GGCTAGCTACAACGA TCCAACTA	2381
227	UGGAGCUU G UGGCGUAG	54	CTACGCCA GGCTAGCTACAACGA AAGCTCCA	2382
	AGCUUGUG G CGUAGGCA	55	TGCCTACG GGCTAGCTACAACGA CACAAGCT	2383
230	CUUGUGGC G UAGGCAAG	56	CTTGCCTA GGCTAGCTACAACGA GCCACAAG	2384
232	UGGCGUAG G CAAGAGUG	57	CACTCTTG GGCTAGCTACAACGA CTACGCCA	2385
236	AGGCAAGA G UGCCUUGA	58	TCAAGGCA GGCTAGCTACAACGA TCTTGCCT	2386
242	GCAAGAGU G CCUUGACG	59	CGTCAAGG GGCTAGCTACAACGA ACTCTTGC	2387
244	GUGCCUUG A CGAUACAG	60	CTGTATCG GGCTAGCTACAACGA CAAGGCAC	2388
250	CCUUGACG A UACAGCUA	61	TAGCTGTA GGCTAGCTACAACGA CGTCAAGG	2389
253	UUGACGAU A CAGCUAAU	62	ATTAGCTG GGCTAGCTACAACGA ATCGTCAA	2390
255		63	TGAATTAG GGCTAGCTACAACGA TGTATCGT	2391
258	ACGAUACA G CUAAUUCA	64	ATTCTGAA GGCTAGCTACAACGA TAGCTGTA	2392
262	UACAGCUA A UUCAGAAU	65	CAAAATGA GGCTAGCTACAACGA TCTGAATT	2393
269	AAUUCAGA A UCAUUUUG		CCACAAAA GGCTAGCTACAACGA GATTCTGA	2394
272	UCAGAAUC A UUUUGUGG	66	TTCGTCCA GGCTAGCTACAACGA AAAATGAT	2395
277	AUCAUUUU G UGGACGAA	67	CATATTCG GGCTAGCTACAACGA CCACAAAA	2396
281	UUUUGUGG A CGAAUAUG	68	GGATCATA GGCTAGCTACAACGA TCGTCCAC	2397
285	GUGGACGA A UAUGAUCC	69	TTGGATCA GGCTAGCTACAACGA ATTCGTCC	2398
287	GGACGAAU A UGAUCCAA	70	TTGTTGGA GGCTAGCTACAACGA CATATTCG	2399
290	CGAAUAUG A UCCAACAA	71	CTCTATTG GGCTAGCTACAACGA TGGATCAT	2400
295	AUGAUCCA A CAAUAGAG	72	ATCCTCTA GGCTAGCTACAACGA TGTTGGAT	2401
298	AUCCAACA A UAGAGGAU	73	TGTAGGAA GGCTAGCTACAACGA CCTCTATT	2402
305	AAUAGAGG A UUCCUACA	74	GCTTCCTG GGCTAGCTACAACGA AGGAATCC	2403
311	GGAUUCCU A CAGGAAGC	75	ACTACTTG GGCTAGCTACAACGA TTCCTGTA	2404
318	UACAGGAA G CAAGUAGU	76	ACTACTIG GGCTAGCTACAACGA TTGCTTCC	2405
322	GGAAGCAA G UAGUAAUU	77	ATCAATTA GGCTAGCTACAACGA TACTTGCT	2406
325	AGCAAGUA G UAAUUGAU	78	TCCATCAA GGCTAGCTACAACGA TACTACTT TCCATCAA GGCTAGCTACAACGA TACTACTT	2407
328	AAGUAGUA A UUGAUGGA	79	TTTCTCCA GGCTAGCTACAACGA CAATTACT	2408
332	AGUAAUUG A UGGAGAAA	80	GAGACAGG GGCTAGCTACAACGA TTCTCCAT	2409
340	AUGGAGAA A CCUGUCUC	81	CCAAGAGA GGCTAGCTACAACGA TICTECAT	2410
344	AGAAACCU G UCUCUUGG	82		2411
353	UCUCUUGG A UAUUCUCG	83	CGAGAATA GGCTAGCTACAACGA CCAAGAGA	2412
355	UCUUGGAU A UUCUCGAC	84	GTCGAGAA GGCTAGCTACAACGA ATCCAAGA	2413
362	UAUUCUCG A CACAGCAG	85	CTGCTGTG GGCTAGCTACAACGA CGAGAATA	2414
364	UUCUCGAC A CAGCAGGU	86	ACCTGCTG GGCTAGCTACAACGA GTCGAGAA	2415
367	UCGACACA G CAGGUCAA	87	TTGACCTG GGCTAGCTACAACGA TGTGTCGA	2416
371	CACAGCAG G UCAAGAGG	88	CCTCTTGA GGCTAGCTACAACGA CTGCTGTG	2417
381	CAAGAGGA G UACAGUGC	89	GCACTGTA GGCTAGCTACAACGA TCCTCTTG	2417
383	AGAGGAGU A CAGUGCAA	90	TTGCACTG GGCTAGCTACAACGA ACTCCTCT	2418
386	GGAGUACA G UGCAAUGA	91	TCATTGCA GGCTAGCTACAACGA TGTACTCC	2419
388	AGUACAGU G CAAUGAGG	92	CCTCATTG GGCTAGCTACAACGA ACTGTACT	2421
391	ACAGUGCA A UGAGGGAC	93	GTCCCTCA GGCTAGCTACAACGA TGCACTGT	2422
398	AAUGAGGG A CCAGUACA	94	TGTACTGG GGCTAGCTACAACGA CCCTCATT	2422
402	AGGGACCA G UACAUGAG	95	CTCATGTA GGCTAGCTACAACGA TGGTCCCT	2424
404	GGACCAGU A CAUGAGGA	96	TCCTCATG GGCTAGCTACAACGA ACTGGTCC	<del></del>
406	ACCAGUAC A UGAGGACU	97	AGTCCTCA GGCTAGCTACAACGA GTACTGGT	2425
412	ACAUGAGG A CUGGGGAG	98	CTCCCCAG GGCTAGCTACAACGA CCTCATGT	2426
422	UGGGGAGG G CUUUCUUU	99	AAAGAAAG GGCTAGCTACAACGA CCTCCCCA	2427
431	CUUUCUUU G UGUAUUUG	100	CAAATACA GGCTAGCTACAACGA AAAGAAAG	2428

435 CUUGUIGU A UNUUGCCA 1012 ACGCANATA GCCTAGCTACAAGA ACAAGAAA 2429 439 GUGUAUUU G CCAUAAAU 102 ATTATTTA GGTAGCTACAAGA ACACAAAA 2432 442 UAUUUGCC A UAAAUAAU 104 ATTATTTA GGTAGCTACAAGA ACATACAC 2431 444 UACCAUAA A UACUAAAU 105 TAGTATTA GGTAGCTACAACGA GACAAAAA 2432 446 UACCAUAA A UACUAAAU 106 ATTATTTA GGCTAGCTACAACGA ACATATA 2432 449 CAUAAAUA A UACUAAAU 106 ATTATTTA GGCTAGCTACAACGA ATTATTGCA 2433 449 CAUAAAUA A UACUAAAU 106 ATTAGTTA GGCTAGCTACAACGA ATTATTTA GCTAGCTACAACGA TATTATGCA 2434 451 UAAAUAAU A CURAAAUCA 107 TGATTTAG GGCTAGCTACAACGA ATTATTTA GCTAGCTACAACGA ATTATTATGA 2434 452 ACUAAAUCA A UUUGAAGA 108 TCATAGTAG GGCTAGCTACAACGA ATTATTTA 2436 453 ACUAAAUCA UUUGAAGA 108 TCATAGTAG GGCTAGCTACAACGA ATTATTTA 2436 454 AUUUCAACA UUUGAAGA 109 TCTTCAAA GGCTAGCTACAACGA GATTTAGT 2437 457 AUUUCAACA UUUGAAGA 111 ATTAGTAA GGCTAGCTACAACGA ATCTTCAAA 2439 467 AUUUCAACA UUAUAAGA 112 TATAGTATG GGCTAGCTACAACGA ATCTTCAA 2439 479 UCAACGAU A UACACCAU 111 ATGGTAGA GGCTAGCTACAACGA ATCTTCAA 2439 479 UCAACGAU A UACACGAU 112 TATAGTAG GGCTAGCTACAACGA AATGGTAG 2441 479 UCACCAUU A UAGAGAAC 114 GTTCTCTA GGCTAGCTACAACGA AATGGTAG 2441 479 UCACCAUU A UAGAGAAC 114 GTTCTCTA GGCTAGCTACAACGA AATGGTAG 2441 479 UCACCAUU A UAGAGAAC 114 GTTCTCTA GGCTAGCTACAACGA ATTGTTCA 2443 480 GAGAACAA A UUAAAAGA 116 TCTTTTAA GGCTAGCTACAACGA TCTCTATA 2439 490 GAGAACAA A UUAAAAGA 116 TCTTTTAA GGCTAGCTACAACGA TCTCTTATA 2443 515 CUCUGAAG A UUCAAGGA 117 GTCCTATA GGCTAGCTACAACGA TCTCTTATA 2443 516 AGUUAAGG A CUCUGAAG 118 CTTCTAGAG GGCTAGCTACAACGA TCTCTTAC 2444 517 CAGAAGAU CA UUCACCAU 119 TAGGTACA GGCTAGCTACAACGA TCTCTTAC 2446 515 CUCUGAAG A UGUACCUA 119 TAGGTACA GGCTAGCTACAACGA TCTCTTAC 2446 515 CUCUGAAG A UGUACCUA 119 TAGGTACA GGCTAGCTACAACGA TCTCTTAC 2446 515 CUCUGAAG A UGUACCUA 119 TAGGTACA GGCTAGCTACAACGA TCTCTTAC 2446 516 AGUUAAGGA A UGUACCUA 119 TAGGTACA GGCTAGCTACAACGA TCTCTTCC 2446 517 CAGAAGAU A UACACCA 1122 CATAGGG GGCTAGCTACAACGA TCTCTTAC 2446 518 CAACAGAGU A CACACAGA 1122 CATAGGG GGCTAGCTACAACGA TCTCTTCC 2446 519 AAGAGAGA G UGUACCUA 119 TAGGTACA GGCTAGCTACAA					
419 GUGUAUUU G CCAUAAAU  412 UAUUUGCC A UAAAUAAU  414 10 GCCAUAAAAA  414 10 GCCAUAAAA  414 10 GCCAUAAAA  415 10 CACAUAAA  416 10 GCCAUAAA  417 11	433	UUCUUUGU G UAUUUGCC	101	GGCAAATA GGCTAGCTACAACGA ACAAAGAA	2429
442 UAUUUGCC A UAAAUAU 104 ATTATTTA GGCTAGCTACAACGA GGCAAATA 2432 446 UGCCAUAA A. UAAUACUA 105 ATTATTTA GGCTAGCTACAACGA TTATGGCA 2433 449 CANAAUA A. UAAUCAAUA 106 ATTATTTA GGCTAGCTACAACGA TATGTGCA 2434 451 UAAAUAAU A CUAAAUCA 107 TGATTTAG GGCTAGCTACAACGA ATTATTTAT 2435 452 AAUAACUAA UAUUGA 108 TCAAATGA GGCTAGCTACAACGA ATTATTAT 2435 453 AAUAACUAA UAUUGA 109 TCAAATGA GGCTAGCTACAACGA ATTATTAT 2436 454 AAUAACUAA A UAUUGAAC 110 GGTGAATG GGCTAGCTACAACGA ATTATTAT 2436 455 AAUAACUA A UUGAACCA 110 GGTGAATG GGCTAGCTACAACGA ATTATTAT 2436 467 UUGAAGAGU A UUUCACCA 111 ATGGTAT 2437 467 AUUUGAAC A UUUCACCA 111 ATGGTAGA GGCTAGCTACAACGA GATTTAGT 2439 473 AGAUAUCA C ACAUUUUA 112 TATAATGG GGCTAGCTACAACGA GATTATCT 2440 476 UAUUCACC A UUAUAGAG 113 CTCTATAA GGCTAGCTACAACGA GATTATCT 2440 4779 UCACCAUU A UAGAGAAC 114 GTTCCTCA GGCTAGCTACAACGA GATATCT 2440 4790 UCACCAUU A UAGAGAAC 114 GTTCCTCA GGCTAGCTACAACGA GATGATAT 2441 4890 UAUAGAGA A CAAAUUAA 115 TTAATTTG GGCTAGCTACAACGA AATGGTGA 2442 4990 UUAAAAGA G UUAAGAGA 114 GTTCCTTA GGCTAGCTACAACGA ATGGTTCA 2441 4990 UUAAAAGA G UUAAGAGA 118 CTTCAGAG GGCTAGCTACAACGA ATGGTTCA 2441 4990 UUAAAAGA G UUAAGAGA 118 CTTCAGAG GGCTAGCTACAACGA ACTGTTCTC 2441 4990 UUAAAAGA G UUAAGAGA 118 CTTCAGAG GGCTAGCTACAACGA ACTGTTCTC 2441 4990 UUAAAAGA G UUAAGAGA 118 CTTCAGAG GGCTAGCTACAACGA ACTGTTCTC 4445 5151 CUCAGAGA UUGACUA 119 TAGGTCAC GGCTAGCTACAACGA ACTGTTCC 4446 5151 CUCAGAGA UUGACUA 119 TAGGTCAC GGCTAGCTACAACGA ACTGTTCC 4446 5152 UAGUCAGA G UCACUAUG 120 CATAGGTA CAGGA GCTTAACAGA ACTCTTCAG 517 CUGAAGAU G UCCUAGUG 121 ACCATAGG GCTAGCTACAACGA ACTCTTCAG 524 UACCUAGA G UACCUAUG 122 TAGGACCA GGCTAGCTACAACGA ACTCTTCAG 524 UACCUAGA G UACCUAUG 122 TAGGACCA GGCTAGCTACAACGA ACTTCTCAG 525 UAGUCCUA G UAGGAAU 122 TAGGACCA GGCTAGCTACAACGA ACTCTTCAG 526 UACCUAGA G UACCUAUG 122 TAGGACCA GGCTAGCTACAACGA ACTTCTCC 445 527 GGCAGAGA A UAAAUGUG 123 CACATAGG GGCTAGCTACAACGA ACTTCTCC 445 528 GGAAGAGA A UAGAGAAU 124 ATTTCCTA GGCTAGCTACAACGA ACTTCTCC 445 546 UACCUAGA A CAGGACA 112 ATTTCTCT GGCTAGCTACAACGA ACTTCTCT 445 547 GGACAGAG A C	435	CUUUGUGU A UUUGCCAU	102	ATGGCAAA GGCTAGCTACAACGA ACACAAAG	2430
446 UGCCAURA A. UARUNCUA 105 TAGTATTA GGCTAGCTACAAGA TTATTGGCA 2433  449 CAUAAAUA A UACUAAAU 106 ATTTAGTA GGCTAGCTACAAGA TTATTTAG 2434  451 UAAAUAAU A UAUAAUCA 107 TAGTATTAG GGCTAGCTACAAGA ATTATTTAG 2434  455 AAUACURA A. UCAUUUGA 108 TCAAATGA GGCTAGCTACAAGA ATTATTTAG 2436  459 ACUAAAUC A UUUGAAGA 109 TCATCAAA GGCTAGCTACAAGGA TTAGTATT 2436  467 AUUUGAAG A UAUUCACC 110 GGTGAATTA GGCTAGCTACAAGGA CTTCATAA 2438  469 UUGAAGAU A UUCACCAU 111 ATGGTGTAA GGCTAGCTACAAGGA CTTCAAAA 2439  469 UUGAAGAU A UUCACCAU 111 ATGGTGTAA GGCTAGCTACAAGGA CTTCAAAA 2439  473 AGAUAUUCA C CAUUUUA 112 TATATTGG GGCTAGCTACAAGGA ATCTTCAA 2439  4740 UAUCACCA UUAUAAGA 113 CTCTATAA GGCTAGCTACAAGGA ATCTTCAA 2439  475 UCACCAUU A UAGAGAAC 114 GTCTCTA GGCTAGCTACAAGGA ATCTTCAA 2440  476 UAUUGAGGA A CAUAUAUA 115 TTAATTTG GGCTAGCTACAAGGA ATCTTCTAA 2441  479 UCACCAUU A UAGAGAAC 114 GTCTCTA GGCTAGCTACAAGGA TCTCTTATA 2443  480 GAGAACAA A UUAAAGAG 115 TTAATTTG GGCTAGCTACAAGGA TCTCTTATA 2443  490 UUAAAAGA G UUAAAGAG 117 GTCCTTA GGCTAGCTACAAGGA TCTCTTATA 2443  506 AGUUAAAGG A CUCUGAAG 118 CTCTTATA GGCTAGCTACAAGGA TCTTCTAA 2445  515 CUCUGAAG A UGUACGAG 117 GTCCTTAA GGCTAGCTACAAGGA TCTTTCAC 2445  515 CUCUGAAG A UGAAGGAC 117 GTCCTTAA GGCTAGCTACAAGGA TCTTTCAC 2445  517 CUGAAGAU G UACCUAUG 120 CATAGGTA GGCTAGCTACAAGGA TCTTCTAC 2445  518 CUUGAAGA C UUCAGGAA 118 CTCCAGAG GGCTAGCTACAAGGA TCTTCTAC 2445  519 GAAGAUGU A CCUUAUGU 120 CATAGGTA GGCTAGCTACAAGGA TCTTCTCA 2445  519 GAAGAUG A UGUACCUA 119 TAGGTACA GGCTAGCTACAAGGA ACTCTCC 2449  522 AUGUACCU A UGUACCUA 119 TAGGTAGA GGCTAGCTACAAGGA ACTCTTC 2449  523 AUGUACCU A UGUACCUA 1120 CATAGGTA GGCTAGCTACAAGGA ACTCTTC 2449  524 DGUACCUA UGUACCUA 121 ACCATAGG GGCTAGCTACAAGGA ACTCTTC 2449  525 UGUACCUA UGUACCUA 122 CATAGGACA GGCTAGCTACAAGGA ACTCTTC 2451  531 GAAGAUA A UAGUACCUA 122 CATAGGACA GGCTAGCTACAAGGA ACTCTTC 2451  532 DGUACCUA UGUACCUA 122 CATAGGACA GGCTAGCTACAAGGA ACTCTTC 2451  533 AGGAACAA A UAAAUGUG 122 CATAGGACA GGCTAGCTACAAGGA TCTTTCTC 2451  545 AAUAAUGA G UACCUAUGA 123 TACTTAGG GGCTAGCTACAAGGA TTCTTCTC 2451  552 UUG	439	GUGUAUUU G CCAUAAAU	103	ATTTATGG GGCTAGCTACAACGA AAATACAC	2431
449 CAUANAUA A UACUARAU  451 UARAURAU A CUCARAUCA  451 UARAURAU A CURABUCA  451 UARAURAU A CURABUCA  452 AURAUCHA A LUCHUUGA  108 TORATTAG GGCTAGCTRACAGA ATTATTTA  453 AURAUCHA A LUCHUUGA  108 TORATTAG GGCTAGCTRACAGA TTATTTAT  454 AURAUCHA A LUCHUUGA  109 TOTTCARA GGCTAGCTRACAGA GATTTAGT  2436  459 ACUARAUC A UUUGAACC  110 GGTGAATA GGCTAGCTRACAGGA GATTTAGT  2437  467 AURUGAAG A UNUCACCAU  111 ATSGTGRA GGCTAGCTRACAGGA ATTATATT  448 UUGAAGAU A UUCACCAU  111 ATSGTGRA GGCTAGCTRACAGGA ATCTTCAAA  449 UUGAAGAU A UUCACCAU  112 TATATATG GGCTAGCTRACAGGA ATCTTCAAA  449 UUGAACA A UUUGACCA  113 TATATTG GGCTAGCTRACAGGA ATCTTCAA  449 UUGAAGAGA  114 GTTCTTA GGCTAGCTRACAGGA ATGGTGA  1241  449 UCACCAUU A UAGAGAAC  114 GTTCTTA GGCTAGCTRACAGGA ATGGTGA  1241  4490 GAGAACAA A UUAAAAGA  116 CTTCTTAA GGCTAGCTRACAGGA ATGGTGA  4490 GAGAACAA A UUAAAAGA  116 TATATTTG GGCTAGCTRACAGGA TCTTCTATA  4490 GAGAACAA A UUAAAAGA  116 TATATTTA GGCTAGCTRACAGGA TCTTCTATA  4490 GAGAACAA A UUAAAAGA  117 GTCCTTAA GGCTAGCTRACAGGA TCTTCTATA  4491 UUAAAAGA G UUAAAGAGA  118 CTCCAGAG GGCTAGCTCAACGA TCTTCTATA  4515 CUCUGAAG A UUGUAGAG  118 CTCCAGAG GGCTAGCTCAACGA TCTTCTATA  1241  1251 CUCUGAAG A UUGUCAA  119 TAGGTACA GGCTAGCTCAACGA TCTTCTATA  1242  1243 CUCUGAAG A UUGUCAA  119 TAGGTACA GGCTAGCTCAACGA TCTTCTAC  1244 CUCUGAAGA  120 CATAGGTA GGCTAGCTCAACGA ATCTTCAG  1246 CUCUGAAG A UUGCUCAA  121 TAGGTACA GGCTAGCTCAACGA ATCTTCAG  1247 CUGAAGAU G UACCUAUG  121 CATAGGTA GGCTAGCTCAACGA ATCTTCAG  1247 CUGAAGAU G UACCUAUG  122 TAGGACCA GGCTAGCTCAACGA ATCTTCAG  1248 CUCUGAAG  124 TATCTCAG GGCTAGCTCAACGA ATCTTCAG  1249 CACACUAGGA  125 TAGGTAC GGCTAGCTCAACGA ATCTTCAG  1249 CACACUAGGA  124 TATCTCAGA GGCTAGCTCAACGA ATCTTCAG  1249 CACACUAGGA  124 TATCTCAG GGCTAGCTCAACGA ATCTTCAG  1249 CACACUAGA  125 TAGGACCA GGCTAGCTCAACGA ATCTTCAG  1249 CACACUAGA  126 TAGGTAGCTACAACGA ACGTTCTCAG  1240 CACACAGAAC  126 TAGGTAGCTACAACGA ACGTTCTCAG  1240 CACACAGAAC  124 TATCTCAG GGCTAGCTCAACGA ATCTTCTCAG  1241 CACACAGAGAC  124 TATCTCAG GGCTAGCTCAACGA ATCTTCTCTCAG  1245 CACACAGAAC  1246 CACACAGAA	442	UAUUUGCC A UAAAUAAU	104	ATTATTTA GGCTAGCTACAACGA GGCAAATA	2432
451 UAAAUANU A CUANAUCA 107 TGATTTAG GGCTAGCTACAACGA ATTATTTA 2435 456 AAUACUAA A UCAUNUGA 108 TCAAATGA GGCTAGCTACAACGA TITATTAT 2436 459 ACUAANUC A UUUGAAGA 109 TCTACAA GGCTAGCTACAACGA GATTTATT 2437 467 AUUUGAAGA UAUUCACCA 110 GGTGAATGA GGCTAGCTACAACGA CATTCAAAT 2438 469 UUGAAGAU A UUUCACCAU 111 ATGGTGAA GGCTAGCTACAACGA CATTCAAAT 2438 469 UUGAAGAU A UUCACCAU 111 ATGGTGAA GGCTAGCTACAACGA CATCAACA 2439 473 AGAUAUUCA C CAUUNUA 112 TATAATGG GGCTAGCTACAACGA GATATCT 2440 476 UAUUCACCA UUAUAGAGA 113 CTCTATAA GGCTAGCTACAACGA GATATCT 2440 4779 UCACCAUU A UAGAGAAC 114 GTCTCTA GGCTAGCTACAACGA GATATCT 2440 486 UAUAGAGA C AUUAAGAAC 114 GTCTCTA GGCTAGCTACAACGA GATATCT 2441 486 UAUAGAGA A CUAAGAAC 115 TATAATTG GGCTAGCTACAACGA TCTCTTAA 2443 490 UAUAAAAGA G UUAAGGAC 117 GTCCTTA GGCTAGCTACAACGA TCTCTTAA 2443 490 GAGAACAA A UUAAGGAC 117 GTCCTTA GGCTAGCTACAACGA TCTCTTAA 2445 506 AGUUAAGG A CUCUGAAG 118 CTCTCAGAG GGCTAGCTACAACGA TCTCTCAACCA 2445 515 CUCUGAAGA G UUAAGGAC 117 GTCCTTAA GGCTAGCTACAACGA CTCTTAACT 2446 515 CUCUGAAGA A UUAAGGAC 117 GTCCTTAA GGCTAGCTACAACGA CTCTTCAGAG 2447 517 CUGAAGAU G UACCUANG 120 CATCAGGT AGCTACACGA ACTCTTCC 2446 518 CUCUGAAGA C UACCUANG 120 CATCAGGT AGCTACACGA ACTCTTCC 2446 519 GAAGAUGUA A CUCUAGGA 112 CATCAGGT AGCTACACGA ACTCTTC 2449 523 AUGUACCU A UGGUCCUA 120 CATCAGGT AGCTACACGA ACTCTTC 2449 523 AUGUACCU A UGGUCCUA 121 ACCATAGG GGCTAGCTACAACGA ACTCTTC 2449 524 UACCUANG G UCCUAGUA 122 TAGGACCA GGCTAGCTACAACGA ACTCTTC 2453 525 UACCUANG G UCCUAGUA 123 TACTAGGA GGCTAGCTACAACGA ACTTCTC 2453 526 UACCUANG G UACGAACA 123 TATCTCTA GGCTAGCTACAACGA TAGGACCA 2452 526 UACCUANG G UACGAACA 123 TACTAGGA GGCTAGCTACAACGA TAGGACCA 2452 520 UACCUANG G UACGACACA 1122 TAGGACCA GGCTAGCTACAACGA TAGGACCA 2452 521 UACCUANG G UACGACACA 1122 TAGGACCA GGCTAGCTACAACGA TAGGACCA 2452 522 UACCUANG A UAAANUGUG 127 CACATTCT GGCTAGCTACAACGA TTCCTTCC 2453 533 AGUAGAA A UAAANUGUG 127 CACATTCT GGCTAGCTACAACGA TTCCTTCC 2453 548 UAAACGAG A UACAGACA 131 CACATAGGA GGCTAGCTACAACGA TTCTTCT 2453 548 UAAACGAG A UACAGACA 131 TAGTCTC GGCTAGCTACA	446	UGCCAUAA A.UAAUACUA	105	TAGTATTA GGCTAGCTACAACGA TTATGGCA	2433
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459 ACUAANUC A UUUGAAGA 109 TCTTCAAA GGCTAGCTACAACGA GATTTAGT 2437 467 AUUUGAAGA A UAUUCACC 110 GGTGAATA GGCTAGCTACAACGA CTTCAAAT 2438 469 UUGAAGAU A UUCACCAU 111 ATGGTGAA GGCTAGCTACAACGA CTTCAAAT 2438 473 AGAUAUUC A CCAUUUUA 112 TATAATGG GGCTAGCTACAACGA ACTTCAAA 2439 473 AGAUAUUC A CCAUUUUA 112 TATAATGG GGCTAGCTACAACGA ACTATCAA 2439 476 UAUUCACCAU UUAGAGGAC 113 CTCTATAA GGCTAGCTACAACGA GAATATCT 2440 476 UAUUCACCAU UUAGAGGAC 114 GTTCTTA GGCTAGCTAACGA GAATATCT 2441 479 UCACCAUU A UUAGAGGAC 114 GTTCTTA GGCTAGCTAACGA ATGGTGAA 486 UUAAGAGAA A CUAAAAGA 116 TCTTTTAA GGCTAGCTACAACGA TTGTTCTC 2443 490 GAGAACAA A UUAAAAGA 116 TCTTTTAA GGCTAGCTACAACGA TTGTTCTC 2444 499 UUAAAAGA G UUAAGAGAC 117 GTCCTTAA GGCTAGCTACAACGA TTGTTCTC 2445 506 AGUUAAGG A CUCUGAAG 118 CTCAGAGA GGCTAGCTACAACGA CTTTAACT 2445 515 CUCUGAAG A UGUACCUA 119 TAGGTACA GGCTAGCTACAACGA CTTTAACT 2446 517 CUGAAGAU A UGUACCUA 119 TAGGTACA GGCTAGCTACAACGA CTTTAACT 2446 518 CUCUGAAG A UGUACCUA 119 TAGGTACA GGCTAGCTACAACGA CTTTAACT 2446 519 GAAGAUU A CCUAUUGU 120 CATAGGTA GGCTAGCTACAACGA CTTCAGAG 2448 519 GAAGAUU A CCUAUUGU 121 ACCATAGG GGCTAGCTACAACGA ATCTTCC 2448 519 GAAGAUU A CUAUUGU 121 ACCATAGG GGCTAGCTACAACGA ATCTTC 2449 522 AUGUACCU A UAGGUAAU 122 TAGGACCA GGCTAGCTACAACGA ATCTTC 2449 523 AUGUACCU A UAGGUAAU 123 TACTAGGA GGCTAGCTACAACGA ATGGTAC 2451 532 AUGUACCU A UAGGUAAU 124 ATTTCCTA GGCTAGCTACAACGA TTCTCAG 2451 533 AGUAAGAA A UUUGAUUUG 127 GCAATTA GGCTAGCTACAACGA TTCTTACT 2453 534 GGAAAUAAA UUUGAUUUG 127 GCAATTA GGCTAGCTACAACGA TTTCTTAC 2454 545 AAAUAAAU G UGAUUUGC 127 GCAATTA GGCTAGCTACAACGA TTTCTTAC 2454 546 UAAAUAGAU G UAGUAAAU 124 ATTTCCTA GGCTAGCTACAACGA TTTCTTAC 2455 547 AUAAAGAG A CUUUGACAU 128 AAGCCAA GGCTAGCTACAACGA TTTCTTCC 2454 548 UAAAUAGA A UUUGACUU 128 AAGCCAA GGCTAGCTACAACGA TTTTTTCC 2454 549 AAAAAAA A UUUGACUU 128 AAGCCAA GGCTAGCTACAACGA TTTTTTCC 2454 551 AAAUAAAU G UGAUUUGC 127 GGCAATCAACGA CATAGAACA TTTTTTTC 2455 548 UAAAUAAU G UGAUUGAC 130 GTCTACTA GGCTAGCTACAACGA TTTTTTTC 2455 548 UAAAUAAU G UGAUAGAC 131 TGTGTCTA GGCTAGCTACAACGA TTTTT	451	UAAAUAAU A CUAAAUCA	107	TGATTTAG GGCTAGCTACAACGA ATTATTTA	2435
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499 UJAAAAGA A - UJAAAAGA 116 TCTTTTAA GGCTACACGA TTGTTCTC 2444 499 UJAAAAGA G UJAAAGAC 117 GTCCTTAA GGCTAGCTACAACGA TCTTTTAA 2445 506 AGUJAAGG A CUCUGAAG 118 CTTCAGAG GGCTAGCTACAACGA CCTTAACT 2446 515 CUCUGAAG A UGUACCUA 119 TAGGTACA GGCTAGCTACAACGA CCTTAACT 2446 515 CUCUGAAGA U GUACCUAUG 120 CATAGGTA GGCTAGCTACAACGA CTTCAGAG 2447 517 CUGAAGAU G UACCUAUG 120 CATAGGTA GGCTAGCTACAACGA ACTCTTCA 2448 519 GAAGAUGU A UGGUCCUA 121 ACCATAGG GGCTAGCTACAACGA ACTCTTCA 2449 523 AUGUACCU A UGGUCCUA 122 TAGGACCA GGCTAGCTACAACGA ACTCTTC 2449 524 AUGUACCU A UGGUCCUA 122 TAGGACCA GGCTAGCTACAACGA ACATCTTC 2459 525 AUGUACCUA G UACGAAAU 124 ATTTCCTA GGCTAGCTACAACGA TCGACCA 2451 532 UGGUCCUA G UAGGAAAU 124 ATTTCCTA GGCTAGCTACAACGA TAGGTA 2451 533 AGUAGGAA A UAAAUGUG 125 CACATTTA GGCTAGCTACAACGA TTCCTACT 2453 534 GGAAAUAA A UGUGAUUU 126 AAATCACA GGCTAGCTACAACGA TTCTTACT 2453 545 GAAAUAAAU G UGUUUUCC 127 GCAAATCA GGCTAGCTACAACGA ATTTATTT 2455 548 UAAAUGUG A UUUGCCUU 128 AAGGCAA GGCTAGCTACAACGA ATTTATTT 2455 552 UGUGAUUU G CCUUCUAG 129 CTAGAAGG GGCTAGCTACAACGA ATTTATTT 2455 552 UGUGAUUU G CCUUCUAG 129 CTAGAAGG GGCTAGCTACAACGA ATTTATTT 2456 552 UGUGAUUU G CCUUCUAG 129 CTAGAAGG GGCTAGCTACAACGA ATTCTTA 2456 552 UGUGAUUU G CCUUCUAG 129 CTAGAAGG GGCTAGCTACAACGA TTCTAGAA 2456 563 AACAGUAG A CAGAAACA 131 GTCTACTG GGCTAGCTACAACGA TTCTAGAA 2456 564 AACAGUAG A CAGAAACA 132 GTTTTATG GGCTAGCTACAACGA TTCTAGAG 2458 565 CUAGAACA G UAGACACA 131 TGTGTCTA GGCTAGCTACAACGA CTCATCTTT 2460 571 CAGUAGAC A CAAAACA 132 GTTTTTTG GGCTAGCTACAACGA TTCTTGTT 2460 576 GACACAAA A CAGGCUCA 134 TAGGCCTG GGCTAGCTACAACGA CTCTACTGTT 2460 576 GACACAAA A CAGGCUCA 134 TAGGCCTG GGCTAGCTACAACGA CTCTACTGTT 2460 577 CAGUAGAC A CAAAACC 132 GTTTTTAG GGCTAGCTACAACGA TTCTTGTT 2460 578 GGCUCAGG A CUUAGCAA 136 TTGCTAA GGCTAGCTACAACGA TTCTTGTT 2460 579 AGCACAGA G UUAUGCAA 136 TTGCTAAG GGCTAGCTACAACGA TTCTTGTT 2460 600 CAAAACAG G CUUAGGAC 137 ACTTCTTG GGCTAGCTACAACGA TTCTTGTT 2460 601 GUUAUGAA A CAGGAGAG 136 TTCCTTAG GGCTAGCTACAACGA TTCTTCT 2460 602 AAGAGAUG A UUCCUUUU 140 AAAAGGAA GGC					
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506         AGUUNAGG A CUCUGAAG         118         CTTCAGAG GGCTAGCTACAACGA CCTTAACT         2446           515         CUCUGAAG A UGUACCUA         119         TAGGTACA GGCTAGCTACAACGA CTTCAGAG         2447           517         CUGAAGAU G UACCUAUG         120         CATAGGTA GGCTAGCTACAACGA ATCTTCAG         2448           519         GAAGAGUG A CCUAUGGU         121         ACCATAGG GGCTAGCTACAACGA ACATCTTC         2449           523         AUGUACCU A UGGUCUA         122         TAGGACCA GGCTAGCTACAACGA ACATCATC         2450           526         UACCUAUG G UAGGAAAU         123         TACTAGGA GGCTAGCTACAACGA CATAGGTA         2451           532         UGGUCUA G UAGGAAAU         124         ATTTCCTA GGCTAGCTACAACGA TAGGACCA         2452           533         AGUAGGAA A UAAAUGUG         125         CACATTTA GGCTAGCTACAACGA TACTATTC         2453           543         GGAAAUAA A UGUGUUUG         127         GCAAATCA GGCTAGCTACAACGA ATTTATTT         2455           544         AAAUAAAU         UAUUGCCUU         127         GCAAATCACA GGCTAGCTACAACGA ATTTATTT         2455           548         UAAAUGUG A UUUGCA         129         CTAGAAGG GGCTAGCTACAACGA ATTTATTT         2456           552         UGUAUGU A CCUUUAG         129         CTAGAAGA GAACAA AAATCACA         2457					<del></del>
515         CUCUGAAG A UGUACCUA         119         TAGGTACA GGCTAGCTACAAGGA CTTCAGAG         2447           517         CUGAAGAU G UACCUAUG         120         CATAGGTA GGCTAGCTACAAGGA ACTTCAG         2448           519         GAAGAUGU A CCUAUGGU         121         ACCATAGG GGCTAGCTACAAGGA ACTTCAC         2449           523         AUGUACCU A UGGUCCUA         122         TAGGACCA GGCTAGCTACAACGA CATAGGTA         2450           526         UACCUAUG G UCCUAGUA         123         TACTAGGA GGCTAGCTACAACGA CATAGGTA         2451           532         UGGUCCUA G UAGGAAAU         124         ATTTCCTA         GGCTAGCTACAACGA TTCCTACT         2452           539         AGUAGGAA A UAAAUGUG         125         CACATTTA GGCTAGCAACGA TTCCTACT         2453           543         GGAAAUAA A UGUGAUUU         126         AAATCACA GGCTAGCTACAACGA TTTTTT         2455           545         AAAUAAUG G UGAUUUGC         127         GCAAATCA GGCTAGCTACAACGA ATTTATTT         2456           552         UGUGAUUU G CCUUCUAG         129         CTAGAAGG GGCTAGCTACAACGA CACATTTA         2456           552         UGUCUAGA A CAGUACA         131         TGTGTCTAG GGCTAGCTACAACGA CACATTTA         2456           562         CUUCUAGA A CAGAACA         131         TGTGTTAG GGCTAGCTACAACGA TGTTCTAG         245					·
517         CUGAAGAU G UACCUAUG         120         CATAGGTA GGCTAGCTACAACGA ATCTTCAG         2448           519         GAAGAUGU A CCUAUGGU         121         ACCATAGG GGCTAGCTACAACGA ACATCTTC         2449           523         AUGUACU A UGGUCCUA         122         TAGGACCA GGCTAGCTACAACGA ACATCATC         2450           526         UACCUAUG G UCCUAGUA         123         TACTAGGA GGCTAGCTACAACGA TAGGTA         2451           532         UGGUCCUA G UAGGAAAU         124         ATTTCCTA GGCTAGCTACAACGA TAGGACCA         2452           539         AGUAGGAA A UAAAUGUG         125         CACATTTA GGCTAGCTACAACGA TATCTTACT         2453           543         GGAAAUAA A UGUGAUUU         126         AAATCACA GGCTAGCTACAACGA TATTATTCC         2454           545         AAAUAAAU G UGAUUUGC         127         GCAAATCA GGCTAGCTACAACGA TATTATTCC         2454           548         UAAAUGUG A UUUGCCUU         128         AAGGCAAA GGCTAGCTACAACGA TATTATTT         2456           552         UGUCUAGA A CAGUAGAC         130         GTCTACTG GGCTAGCTACACGA CACATTTA         2456           552         UGUCUAGA A CAGUAGAC         131         TOTGTCTA GGCTAGCTACACGA CTCTAGTAG         2457           565         CUUCUAGA A CAGUAGAC         131         TOTGTTTTG GGCTAGCTACACGA CTCTAGTAG         2459				· · · · · · · · · · · · · · · · · · ·	
519         GAAGAUGU A CCUAUGGU         121         ACCATAGG GGCTAGCTACAACGA ACATCTTC         2449           523         AUGUACCU A UGGUCCUA         122         TAGGACCA GGCTAGCTACAACGA AGGTACAT         2450           526         UACCUAUG G UCCUAGUA         123         TACTAGGA GGCTAGCTACAACGA AGGTACAT         2450           526         UAGCUAUG G UAGGAAAU         124         ATTTCCTA GGCTAGCTACAACGA TAGGACCA         2452           539         AGUAGGAA A UAAAUGUG         125         CACATTTA GGCTAGCTACAACGA TTCTTCT         2453           543         GGAAAUAA A UGUGAUUU         126         AAATCACA GGCTAGCTACAACGA TTTATTTC         2454           545         AAAUAAAU G UGAUUUGC         127         GCAAATCA GGCTAGCTACAACGA ATTTATTT         2456           548         UAAAUGUG A UUUGCCUU         128         AAGGCAAA GGCTAGCTACAACGA AAATCACA         2457           546         CUUCUAGA A CUUUGG         129         CTAGAAGG GGCTAGCTACAACGA AAATCACA         2457           562         CUUCUAGA A CACAAAAC         130         GTCTACTG GGCTAGCAACAGA TCTACAAC         2458           565         DAACAGUAG A CACAAAAC         131         TGTGTTG GGCTAGCTACAACGA CTACTGT         2460           571         CAGUAGGA C CAAAAAC         133         CTGTTTTG GGCTAGCTACAACGA CTTGTTG         2461				· · · · · · · · · · · · · · · · · · ·	
523         AUGUACCU A UGGUCCUA         122         TAGGACCA GGCTAGCTACAACGA AGGTACAT         2450           526         UACCUAUG G UCCUAGUA         123         TACTAGGA GGCTAGCTACAACGA CATAGGTA         2451           532         UGGUCCUA G UAGGAAU         124         ATTTCCTA GGCTAGCTACAACGA TAGGACCA         2452           539         AGUAGGAA A UAAAUGUG         125         CACATTTA GGCTAGCTACAACGA TAGGACCA         2453           543         GGAAAUAA A UGUGAUUU         126         AAATCACA GGCTAGCTACAACGA TATTATTT         2454           545         AAAUAAUG G UGAUUUGC         127         GCAAATCA GGCTAGCTACAACGA ATTTATTT         2455           548         UAAAUGUG A UUUGCCUU         128         AAGGCAAA GGCTACAACGA CACATTTA         2456           552         UGUGAUUU G CCUUCUAG         129         CTAGAAG GGCTAGCTACAACGA CACATTTA         2456           552         UGUGAAUU G CUUCUAG         129         CTAGAAG GGCTAGCTACAACGA TCTACAACGA TCTCTAG         2458           565         CUUCAGAA A CAGACACA         131         TOTGTCTG GGCTAGCTACAACGA TCTCTAG         2458           569         AACAGUAG A CAAAACAG         132         GTTTTGTG GGCTAGCTACAACGA TCTCTTG         2460           571         CAGUAGAA A CAGGCUCA         134         TGAGCTAGA ACAGAA GTTCTTTG         2462					
526         UACCUAUG G UCCUAGUA         123         TACTAGGA GGCTAGCTACAACGA CATAGGTA         2451           532         UGGUCCUA G UAGGAAAU         124         ATTTCCTA GGCTAGCTACAACGA TAGGACCA         2452           539         AGUAGGAA A UAAAUGUG         125         CACATTTA GGCTAGCTACAACGA TTCCTACT         2453           543         GGAAAUAA A UGUGAUUU         126         AAATCACA GGCTAGCTACAACGA TTATTTCC         2454           545         AAAUAAAU G UGAUUUC         127         GCAAATCA GGCTAGCTACAACGA ATTTATTT         2455           548         UAAAUGUG A UUUGCCUU         128         AAGGCAAA GGCTAGCTACAACGA CACATTTA         2456           552         UGUGAUU G CCUUCUAG         129         CTAGAAGG GGCTAGCTACAACGA AATCACA         2457           562         CUUCUAGA A CAGUAGAC         130         GTCTACTG GGCTAGCTACAACGA TCTAGAG         2458           565         CUUGAGA A CAGAAAC         131         TGTGTCTA GGCTAGCTACAACGA TCTAGTT         2460           571         CAGUAGA A CACAAAAC         132         GTTTTGTG GGCTAGCTACAACGA TCTACTT         2461           576         GACACAAA A CAGGCUCA         134         TGAGCCTG GGCTAGCTACAACGA TCTTCTT         2462           580         CAAACAGG G CUCAGGA         135         GTCCTGAG GGCTAGCTACAACGA TCTTTTT         2463	<del></del>				
532         UGGUCCUA G UAGGAAAU         124         ATTTCCTA GGCTAGCTACAACGA TAGGACCA         2452           539         AGUAGGAA A UAAAUGUG         125         CACATTTA GGCTAGCTACAACGA TTCCTACT         2453           543         GGAAAUAA A UGUGAUUU         126         AAATCACA GGCTAGCTACAACGA TTTATTTC         2454           545         AAAUAAAU G UGAUUUGC         127         GCAAATCA GGCTAGCTACAACGA ATTTATTT         2455           548         UAAAUGUG A UUUGCCUU         128         AAGGCAAA GGCTAGCTACAACGA ATTTATTT         2456           548         UAAAUGUG A UUUGCCUU         128         AAGGCAAA GGCTAGCTACAACGA CACAGA ATCAACA         2457           562         CUUCUAGA A CAGUAGAC         130         GTCTACTG GGCTAGCTACAACGA TCTAGAAG         2458           565         CUAGAACA         131         TGTGTCTA GGCTAGCTACAACGA TCTTGTT         2460           569         AACAGUAG A CACAAAAC         132         GTTTTGTG GGCTAGCTACAACGA TCTACTTT         2460           571         CAGUAGA A CACAAAAC         133         CTGTTTTG GGCTAGCTACAACGA TCTACTT         2461           576         GACACAAA A CAGGCUCA         134         TGAGCCTG GGCTAGCTACAACGA TCTTTTG         2461           587         GGCUCAGGA C UUAGGAA         136         TTGCTAAG GGCTACCAACGA CTGTTTTG         2465					<del> </del>
539         AGUAGGAA A UAAAUGUG         125         CACATTTA GGCTAGCTACAACGA TTCCTACT         2453           543         GGAAAUAA A UGUGAUUU         126         AAATCACA GGCTAGCTACAACGA TTATTTCC         2454           545         AAAUAAAU G UGAUUUGC         127         GCAAATCA GGCTAGCTACAACGA ATTATTT         2455           548         UAAAUGUG A UUUGCCUU         128         AAGGCAAA GGCTAGCTACAACGA CACATTTA         2456           552         UGUGAUUU G CCUUCUAG         129         CTAGAAGG GGCTAGCTACAACGA AAATCACA         2457           562         CUUCUAGA A CAGUAGAC         130         GTCTACTG GGCTAGCTACAACGA TCTAGAGA         2458           565         CUAGAACA G UAGACACA         131         TGTGTCTA GGCTAGCTACAACGA TCTAGTTA         2469           569         AACAGUAG A CACAAAAC         132         GTTTTTTG GGCTAGCTACAACGA CTACTGTT         2460           571         CAGUAGAC A CAAAACAG         133         CTGTTTTTG GGCTAGCTACAACGA CTTTTTG         2461           576         GACACAAA A CAGGCUCA         134         TGAGCCTG GGCTAGCTACAACGA CTGTTTTG         2462           580         CAAAACAG G CULAGGAA         136         TTCCTAGA GGCTAGCTACAACGA CTGTTTTG         2463           587         GGCUCAG A CULAGCAA         136         TTGCTAGA GGCTAGCTACAACGA CTGTGCT         2463     <					<del> </del>
543         GGAAAUAA A UGUGAUUU         126         AAATCACA GGCTAGCTACAACGA TTATTTCC         2454           545         AAAUAAAU G UGAUUUGC         127         GCAAATCA GGCTAGCTACAACGA ATTTATTT         2455           548         UAAAUGUG A UUUGCCUU         128         AAGGCAAA GGCTAGCTACAACGA CACATTTA         2456           552         UGUGAUU G CCUUCUAG         129         CTAGAAGG GGCTAGCTACAACGA AAATCACA         2457           562         CUUCUAGA A CAGUAGAC         130         GTCTACTG GGCTAGCTACAACGA TCTAGAAG         2458           565         CUAGAACA G UAGACCA         131         TGTGTTA GGCTAGCTACAACGA TGTTCTAG         2459           569         AACAGUAG A CACAAACA         132         GTTTTGTG GGCTAGCTACAACGA TGTTCTTG         2460           571         CAGUAGAC A CAAAACAG         133         CTGTTTTG GGCTAGCTACAACGA TTTGTTT         2462           576         GACACAAA A CAGGCUCA         134         TGAGCCTG GGCTAGCTACAACGA TTTTTTTG         2463           580         CAAAACAG G CUCAGGAC         135         GTCCTGAG GGCTAGCTACAACGA CTGTTTTTG         2463           581         GGCACCAGA         136         TTGCTAGA GGCTACAACGA CTGTAGCTACAACGA CTGTAGCC         2464           582         AGGACUUA G CAAGAAGU         137         ACTTCTTG GGCTACAACGA TTCTTCTT         2465 <td><del></del></td> <td></td> <td></td> <td></td> <td></td>	<del></del>				
545         AAAUAAAU G UGAUUUGC         127         GCAAATCA GGCTAGCTACAACGA ATTTATTT         2455           548         UAAAUGUG A UUUGCCUU         128         AAGGCAAA GGCTAGCTACAACGA CACATTTA         2456           552         UGUGAUUU G CCUUCUAG         129         CTAGAAGG GGCTAGCTACAACGA AAATCACA         2457           562         CUUCUAGA A CAGUAGAC         130         GTCTACTG GGCTACAACGA TCTAGAAG         2458           565         CUAGAACA G UAGACACA         131         TGTGTCTA GGCTACAACGA TGTCTCTA         2459           569         AACAGUAG A CACAAAAC         132         GTTTTGTG GGCTAGCTACAACGA TGTCTGT         2460           571         CAGUAGAC A CAAAACAG         133         CTGTTTTG GGCTAGCTACAACGA TTTGTGTC         2461           576         GACACAAA A CAGGCUCA         134         TGAGCCTG GGCTAGCTACAACGA TTTGTTGTC         2462           580         CAAAACAG G CUCAGGAC         135         GTCCTGAG GGCTAGCTACAACGA CTGTTTTG         2463           587         GGCUCAGG A CUUAGCAA         136         TTGCTAAG GGCTACCAACGA CTGTTCT         2465           592         AGGACUUA G CAACAAUC         137         ACTTCTTG GGCTACCAACGA TTCTTTCT         2465           599         AGCAAGAA U UGGAAUC         139         GAATTCCA GGCTACCAACGA ACTTCTT         2466		<del></del>			
548         UAAAUGUG A UUUGCCUU         128         AAGGCAAA GGCTAGCTACAACGA CACATTTA         2456           552         UGUGAUUU G CCUUCUAG         129         CTAGAAGG GGCTAGCTACAACGA AAATCACA         2457           562         CUUCUAGA A CAGUAGAC         130         GTCTACTG GGCTAGCTACAACGA TCTAGAAG         2458           565         CUAGAACA G UAGACACA         131         TGTGTCTA GGCTAGCTACAACAG TCTACTGT         2460           569         AACAGUAG A CACAAAAC         132         GTTTTTG GGCTAGCTACAACGA CTACTGTT         2460           571         CAGUAGAC A CACAACAC         133         CTGTTTTG GGCTAGCTACAACGA GTCTACTG         2461           576         GACACAAA A CAGGCUCA         134         TGAGCCTG GGCTAGCTACAACGA TTTGTGTC         2462           580         CAAAACAG G CUCAGGAC         135         GTCCTGAG GGCTAGCTACAACGA CTGTTTTG         2463           587         GGCUCAGG A CUUAGCAA         136         TTGCTAAG GGCTAGCTACAACGA TCTGTCT         2465           592         AGGACUUA G CAAGAAGU         137         ACTTCTTG GGCTAGCTACAACGA TAAGTCCT         2465           599         AGCAAGAA G UUAUGGAA         138         TTCCATAA GGCTAGCTACAACGA TACTTCT         2467           602         ANGAAGUA A UCCUUUU         140         AAAAGGAA GCTACAACGA TCCATAC         2468	<b></b>				<del></del>
552         UGUGAUUU G CCUUCUAG         129         CTAGAAGG GGCTAGCTACAACGA AAATCACA         2457           562         CUUCUAGA A CAGUAGAC         130         GTCTACTG GGCTAGCTACAACGA TCTAGAAG         2458           565         CUAGAACA G UAGACACA         131         TGTGTCTA GGCTAGCTACAACGA TGTTCTAG         2459           569         AACAGUAG A CACAAAAC         132         GTTTTGTG GGCTAGCTACAACGA CTACTGTT         2460           571         CAGUAGAC A CAAAACAG         133         CTGTTTTG GGCTAGCTACAACGA GTCTACTG         2461           576         GACACAAA A CAGGCUCA         134         TGAGCCTG GGCTAGCTACAACGA TTTGTGTC         2462           580         CAAAACAG G CUCAGGAC         135         GTCCTGAG GGCTAGCTACAACGA CTGTGTTT         2463           587         GGCUCAGG A CUUAGCAA         136         TTGCTAAG GGCTAGCTACAACGA CTGAGCC         2464           592         AGGACUUA G CAAGAAGU         137         ACTTCTTG GGCTAGCTACAACGA TAAGTCT         2465           599         AGCAAGAA G UUAUGGAA         138         TTCCATAA GGCTAGCTACAACGA TCTTTGCT         2466           602         AAGAAGUU A UGGAAUUC         139         GAATTCCA GGCTAGCTACAACGA TCCATAAC         2467           607         GUUAUGGA A UUCCUUUU         140         AAAAGGA G GCTAGCTACAACGA TCTATAAC         2468		*			
562         CUUCUAGA A CAGUAGAC         130         GTCTACTG GGCTAGCTACAACGA TCTAGAAG         2458           565         CUAGAACA G UAGACACA         131         TGTGTCTA GGCTAGCTACAACGA TGTTCTAG         2459           569         AACAGUAG A CACAAAAC         132         GTTTTGTG GGCTAGCTACAACGA CTACTGTT         2460           571         CAGUAGAC A CAAAACAG         133         CTGTTTTG GGCTAGCTACAACGA GTCTACTG         2461           576         GACACAAA A CAGGCUCA         134         TGAGCCTG GGCTAGCTACAACGA CTGTTTTG         2462           580         CAAAACAG G CUCAGGAC         135         GTCCTGAG GGCTAGCTACAACGA CTGTTTTG         2463           587         GGCUCAGG A CUUAGGAA         136         TTGCTAAG GGCTAGCTACAACGA CTGAGCC         2464           592         AGGACUUA G CAAGAAGU         136         TTCCTAA GGCTAGCTACAACGA TAGTCCT         2465           599         AGCAAGAA G UUAUGGAA         138         TTCCATAA GGCTAGCTACAACGA TACTCTT         2466           602         AAGAAGUU A UGGAAUUC         139         GAATTCCA GGCTAGCTACAACGA TCCATAAC         2468           616         UUCCUUUU A UUGAAACA         141         TGTTTCAA GGCTACAACGA TCCATAAC         2468           616         UUCCUUUU A UUGAAACA         141         TGTTTCAA GGCTACAACGA TCAACGA TTCAATAA         2470 </td <td></td> <td></td> <td></td> <td>**************************************</td> <td></td>				**************************************	
565         CUAGAACA         GUAGACCA         131         TOTGTCTA         GGCTAGCTACAACGA         TGTTCTAG         2459           569         AACAGUAG         A CACAAAAC         132         GTTTTGTG         GGCTAGCTACAACGA         CTACTGTT         2460           571         CAGUAGAC         A CACAAAAC         133         CTGTTTTG         GGCTAGCTACAACGA         GTCACTGG         2461           576         GACACAAA         A CAGGCUCA         134         TGAGCCTG         GGCTAGCTACAACGA         TTTGTGTC         2462           580         CAAAACAG         G CUCAGGAC         135         GTCCTGAG         GGCTAGCTACAACGA         CTGTGTTTTG         2463           587         GGCUCAGG         A CUUAGCAA         136         TTGCTAAG         GGCTAGCTACAACGA         CCTGAGCC         2464           592         AGGACUUA         G CAAGAAGU         137         ACTTCTTG         GGCTAGCTACAACGA         TCTGTGCT         2465           599         AGCAAGAA         G UUAUGGAA         138         TTCCATAA         GGCTAGCTACAACGA         TCTTTGCT         2466           602         AAGAAGUU         A UGAGAAUUC         139         GAATTCCA         GGCTAGCTACAACGA         TCCATAAC         2468           616         UUC					<del>                                     </del>
569         AACAGUAG A         CACAAAAC         132         GTTTTGTG         GGCTAGCTACAACGA         CTACTGTT         2460           571         CAGUAGAC         A         CAAAACAG         133         CTGTTTTG         GGCTAGCTACAACGA         GTCACTGTG         2461           576         GACACAAA         A         CAGGCUCA         134         TGAGCCTG         GGCTAGCTACAACGA         TTTGTTTTG         2462           580         CAAAACAG         G CUCAGGAC         135         GTCCTGAG         GGCTAGCTACAACGA         CTGTGTTTTG         2463           587         GGCUCAGG         A         CUUAGCAA         136         TTGCTAAG         GGCTAGCTACAACGA         CCTGAGCC         2464           592         AGGACUUA         G         CAAGAAGU         137         ACTTCTTG         GGCTAGCTACAACGA         TAAGTCCT         2465           599         AGCAAGAA         G         UUAUGGAA         138         TTCCATAA         GGCTAGCTACAACGA         TCCTTTCT         2466           602         AAGAAGUU         A         UGGAAUUC         139         GAATTCCA         GGCTAGCTACAACGA         ACCTTACT         2468           616         UUCCUUUU         A         UUGAACCA         141         TGTTTCAA         GG	<del></del>			<del></del>	
571         CAGUAGAC A CAAAACAG         133         CTGTTTTG GGCTAGCTACAACGA GTCTACTG         2461           576         GACACAAA A CAGGCUCA         134         TGAGCCTG GGCTAGCTACAACGA TTTGTGTC         2462           580         CAAAACAG G CUCAGGAC         135         GTCCTGAG GGCTAGCTACAACGA CTGTTTTG         2463           587         GGCUCAGG A CUUAGCAA         136         TTGCTAAG GGCTAGCTACAACGA CCTGAGCC         2464           592         AGGACUUA G CAAGAAGU         137         ACTTCTTG GGCTAGCTACAACGA TAAGTCCT         2465           599         AGCAAGAA G UUAUGGAA         138         TTCCATAA GGCTAGCTACAACGA TTCTTGCT         2466           602         AAGAAGUU A UGGAAUUC         139         GAATTCCA GGCTAGCTACAACGA AACTTCTT         2467           607         GUUAUGGA A UUCCUUUU         140         AAAAGGAA GGCTAGCTACAACGA TCCATAAC         2468           616         UUCCUUUU A UUGAAACA         141         TGTTTCAA GGCTAGCTACAACGA AAAAGGAA         2469           622         UUAUUGAA A CAUCAGCA         142         TGCTGATG GGCTAGCTACAACGA TTCAATAA         2470           624         AUUGAAAC A UCAGCAAA         143         TTTGCTGA GGCTAGCTACAACGA GTTCAAT         2471           628         AAACAUCA G CAAGACAG         144         TGTCTTTG GGCTAGCTACAACGA CTTGCTG         2473					l ———
576 GACACAAA A CAGGCUCA 134 TGAGCCTG GGCTAGCTACAACGA TTTGTGTC 2462 580 CAAAACAG G CUCAGGAC 135 GTCCTGAG GGCTAGCTACAACGA CTGTTTTG 2463 587 GGCUCAGG A CUUAGCAA 136 TTGCTAAG GGCTAGCTACAACGA CCTGAGCC 2464 592 AGGACUUA G CAAGAAGU 137 ACTTCTTG GGCTAGCTACAACGA TAAGTCCT 2465 599 AGCAAGAA G UUAUGGAA 138 TTCCATAA GGCTAGCTACAACGA TTCTTGCT 2466 602 AAGAAGUU A UGGAAUUC 139 GAATTCCA GGCTAGCTACAACGA ACCTTCTT 2467 607 GUUAUGGA A UUCCUUUU 140 AAAAGGAA GGCTAGCTACAACGA ACCTTCTT 2468 616 UUCCUUUU A UUGAAACA 141 TGTTTCAA GGCTAGCTACAACGA AAAAGGAA 2469 622 UUAUUGAA A CAUCAGCA 142 TGCTGATG GGCTAGCTACAACGA TTCAATAA 2470 624 AUUGAAAC A UCAGCAAA 143 TTTGCTGA GGCTAGCTACAACGA GTTTCAAT 2471 628 AAACAUCA G CAAAGACA 144 TGTCTTTG GGCTAGCTACAACGA TGATGTTT 2472 634 CAGCAAAG A CAAGACAG 145 CTGTCTTG GGCTAGCTACAACGA CTTTGCTG 2473 639 AAGACAAG A CAAGACAG 146 ACACCCTG GGCTAGCTACAACGA CTTTGCTT 2474 644 AAGACAGG C UGUUGAUG 147 CATCAACA GGCTAGCTACAACGA CTTTGCTT 2475 646 GACAGGGU G UUGAUGAU 148 ATCATCAA GGCTAGCTACAACGA CCTGTCTT 2475 646 GACAGGGU G UUGAUGAU 148 ATCATCAA GGCTAGCTACAACGA CCTGTCTT 2476 650 GGGUGUUG A UGAUGCU 149 AGGCATCA GGCTAGCTACAACGA CAACACCC 2477 653 UUGAUGAU G CCUUCUAU 150 AGAAGGCA GGCTAGCTACAACGA ATCAACAC 2478					<del></del>
580 CAAAACAG G CUCAGGAC 135 GTCCTGAG GGCTAGCTACAACGA CTGTTTTG 2463 587 GGCUCAGG A CUUAGCAA 136 TTGCTAAG GGCTAGCTACAACGA CCTGAGCC 2464 592 AGGACUUA G CAAGAAGU 137 ACTTCTTG GGCTAGCTACAACGA TAAGTCCT 2465 599 AGCAAGAA G UUAUGGAA 138 TTCCATAA GGCTAGCTACAACGA TTCTTGCT 2466 602 AAGAAGUU A UGGAAUUC 139 GAATTCCA GGCTAGCTACAACGA TTCTTTT 2467 607 GUUAUGGA A UUCCUUUU 140 AAAAGGAA GGCTAGCTACAACGA TCCATAAC 2468 616 UUCCUUUU A UUGAAACA 141 TGTTTCAA GGCTAGCTACAACGA AAAAGGAA 2469 622 UUAUUGAA A CAUCAGCA 142 TGCTGATG GGCTAGCTACAACGA TTCAATAA 2470 624 AUUGAAAC A UCAGCAAA 143 TTTGCTGA GGCTAGCTACAACGA GTTTCAAT 2471 628 AAACAUCA G CAAAGACA 144 TGTCTTTG GGCTAGCTACAACGA TGATGTTT 2472 634 CAGCAAAG A CAAGACAG 145 CTGTCTT GGCTAGCTACAACGA CTTTGCTG 2473 639 AAGACAAG A CAAGACAG 146 ACACCCTG GGCTAGCTACAACGA CTTTGCTT 2474 644 AAGACAGG G UGUUGAUG 147 CATCAACA GGCTAGCTACAACGA CTTGTCTT 2475 646 GACACGGU G UUGAUGAU 148 ATCATCAA GGCTAGCTACAACGA ACCCTGTC 650 GGGUGUUG A UGAUGCCU 149 AGGCATCA GGCTAGCTACAACGA CAACACCC 2477 653 UGUUGAUG A UGCCUUCU 150 AGAAGGCA GGCTAGCTACAACGA CATCAACA 2478 655 UUGAUGAU G CCUUCUAU 151 ATAGAAGG GGCTAGCTACAACGA ATCATCAA 2479					<del></del>
587 GGCUCAGG A CUUAGCAA 136 TTGCTAAG GGCTAGCTACAACGA CCTGAGCC 2464 592 AGGACUUA G CAAGAAGU 137 ACTTCTTG GGCTAGCTACAACGA TAAGTCCT 2465 599 AGCAAGAA G UUAUGGAA 138 TTCCATAA GGCTAGCTACAACGA TTCTTGCT 2466 602 AAGAAGUU A UGGAAUUC 139 GAATTCCA GGCTAGCTACAACGA ACCTTCTT 2467 607 GUUAUGGA A UUCCUUUU 140 AAAAGGAA GGCTAGCTACAACGA TCCATAAC 2468 616 UUCCUUUU A UUGAAACA 141 TGTTTCAA GGCTAGCTACAACGA AAAAGGAA 2469 622 UUAUUGAA A CAUCAGCA 142 TGCTGATG GGCTAGCTACAACGA TTCAATAA 2470 624 AUUGAAAC A UCAGCAAA 143 TTTGCTGA GGCTAGCTACAACGA GTTTCAAT 2471 628 AAACAUCA G CAAAGACA 144 TGTCTTTG GGCTAGCTACAACGA TGATGTTT 2472 634 CAGCAAAG A CAAGACAG 145 CTGTCTTG GGCTAGCTACAACGA CTTTGCTG 2473 639 AAGACAAC A CAGGGUGU 146 ACACCCTG GGCTAGCTACAACGA CTTTGCTT 2474 644 AAGACAG G UGUUGAUG 147 CATCAACA GGCTAGCTACAACGA CTTGTCTT 2475 646 GACAGGGU G UUGAUGAU 148 ATCATCAA GGCTAGCTACAACGA CCTGTCTT 2476 650 GGGUGUUG A UGAUGCU 149 AGGCATCA GGCTAGCTACAACGA CACCCC 2477 653 UGUUGAUGA G CCUUCUAU 150 AGAAGGCA GGCTAGCTACAACGA CATCAACA 2478					
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4270  624 AUUGAAAC A UCAGCAAA 143 TTGCTGATG GGCTAGCTACAACGA TTCAATAA 2470  624 AUUGAAAC A UCAGCAAA 143 TTTGCTGA GGCTAGCTACAACGA GTTTCAAT 2471  628 AAACAUCA G CAAAGACA 144 TGTCTTTG GGCTAGCTACAACGA TGATGTTT 2472  634 CAGCAAAG A CAAGACAG 145 CTGTCTTG GGCTAGCTACAACGA CTTTGCTG 2473  639 AAGACAAG A CAGGGUGU 146 ACACCCTG GGCTAGCTACAACGA CTTGTCTT 2474  644 AAGACAGG G UGUUGAUG 147 CATCAACA GGCTAGCTACAACGA CCTGTCTT 2475  646 GACAGGGU G UUGAUGAU 148 ATCATCAA GGCTAGCTACAACGA ACCCTGTC 2476  650 GGGUGUUG A UGAUGCCU 149 AGGCATCA GGCTAGCTACAACGA CACCACCC 2477  653 UGUUGAUG A UGCCUUCU 150 AGAAGGCA GGCTAGCTACAACGA CATCAACA 2478  655 UUGAUGAU G CCUUCUAU 151 ATAGAAGG GGCTAGCTACAACGA ATCATCAA 2479				AAAAGGAA GGCTAGCTACAACGA TCCATAAC	2468
AUUGAAAC A UCAGCAAA 143 TTTGCTGA GGCTAGCTACAACGA GTTTCAAT 2471  628 AAACAUCA G CAAAGACA 144 TGTCTTTG GGCTAGCTACAACGA TGATGTTT 2472  634 CAGCAAAG A CAAGACAG 145 CTGTCTTG GGCTAGCTACAACGA CTTTGCTG 2473  639 AAGACAAG A CAGGGUGU 146 ACACCCTG GGCTAGCTACAACGA CTTGTCTT 2474  644 AAGACAGG G UGUUGAUG 147 CATCAACA GGCTAGCTACAACGA CCTGTCTT 2475  646 GACAGGGU G UUGAUGAU 148 ATCATCAA GGCTAGCTACAACGA ACCCTGTC 2476  650 GGGUGUUG A UGAUGCU 149 AGGCATCA GGCTAGCTACAACGA CACCACCC 2477  653 UGUUGAUG A UGCCUUCU 150 AGAAGGCA GGCTAGCTACAACGA CATCAACA 2478  655 UUGAUGAU G CCUUCUAU 151 ATAGAAGG GGCTAGCTACAACGA ATCATCAA 2479			141	TGTTTCAA GGCTAGCTACAACGA AAAAGGAA	2469
AAACAUCA G CAAAGACA 144 TGTCTTTG GGCTAGCTACAACGA TGATGTTT 2472  634 CAGCAAAG A CAAGACAG 145 CTGTCTTG GGCTAGCTACAACGA CTTTGCTG 2473  639 AAGACAAG A CAGGGUGU 146 ACACCCTG GGCTAGCTACAACGA CTTGTCTT 2474  644 AAGACAGG G UGUUGAUG 147 CATCAACA GGCTAGCTACAACGA CCTGTCTT 2475  646 GACAGGGU G UUGAUGAU 148 ATCATCAA GGCTAGCTACAACGA ACCCTGTC 2476  650 GGGUGUUG A UGAUGCCU 149 AGGCATCA GGCTAGCTACAACGA CAACACCC 2477  653 UGUUGAUG A UGCCUUCU 150 AGAAGGCA GGCTAGCTACAACGA CATCAACA 2478  655 UUGAUGAU G CCUUCUAU 151 ATAGAAGG GGCTAGCTACAACGA ATCATCAA 2479			142	TGCTGATG GGCTAGCTACAACGA TTCAATAA	2470
634 CAGCAAAG A CAAGACAG 145 CTGTCTTG GGCTAGCTACAACGA CTTTGCTG 2473 639 AAGACAAG A CAGGGUGU 146 ACACCCTG GGCTAGCTACAACGA CTTGTCTT 2474 644 AAGACAGG G UGUUGAUG 147 CATCAACA GGCTAGCTACAACGA CCTGTCTT 2475 646 GACAGGGU G UUGAUGAU 148 ATCATCAA GGCTAGCTACAACGA ACCCTGTC 2476 650 GGGUGUUG A UGAUGCCU 149 AGGCATCA GGCTAGCTACAACGA CAACACCC 2477 653 UGUUGAUG A UGCCUUCU 150 AGAAGGCA GGCTAGCTACAACGA CATCAACA 2478 655 UUGAUGAU G CCUUCUAU 151 ATAGAAGG GGCTAGCTACAACGA ATCATCAA 2479			143	TTTGCTGA GGCTAGCTACAACGA GTTTCAAT	2471
AAGACAAG A CAGGGUGU 146 ACACCCTG GGCTAGCTACAACGA CTTGTCTT 2474  644 AAGACAGG G UGUUGAUG 147 CATCAACA GGCTAGCTACAACGA CCTGTCTT 2475  646 GACAGGGU G UUGAUGAU 148 ATCATCAA GGCTAGCTACAACGA ACCCTGTC 2476  650 GGGUGUUG A UGAUGCCU 149 AGGCATCA GGCTAGCTACAACGA CAACACCC 2477  653 UGUUGAUG A UGCCUUCU 150 AGAAGGCA GGCTAGCTACAACGA CATCAACA 2478  655 UUGAUGAU G CCUUCUAU 151 ATAGAAGG GGCTAGCTACAACGA ATCATCAA 2479			144	TGTCTTTG GGCTAGCTACAACGA TGATGTTT	2472
644 AAGACAGG G UGUUGAUG 147 CATCAACA GGCTAGCTACAACGA CCTGTCTT 2475 646 GACAGGGU G UUGAUGAU 148 ATCATCAA GGCTAGCTACAACGA ACCCTGTC 2476 650 GGGUGUUG A UGAUGCCU 149 AGGCATCA GGCTAGCTACAACGA CAACACCC 2477 653 UGUUGAUG A UGCCUUCU 150 AGAAGGCA GGCTAGCTACAACGA CATCAACA 2478 655 UUGAUGAU G CCUUCUAU 151 ATAGAAGG GGCTAGCTACAACGA ATCATCAA 2479			145	CTGTCTTG GGCTAGCTACAACGA CTTTGCTG	2473
646 GACAGGGU G UUGAUGAU 148 ATCATCAA GGCTAGCTACAACGA ACCCTGTC 2476 650 GGGUGUUG A UGAUGCCU 149 AGGCATCA GGCTAGCTACAACGA CAACACCC 2477 653 UGUUGAUG A UGCCUUCU 150 AGAAGGCA GGCTAGCTACAACGA CATCAACA 2478 655 UUGAUGAU G CCUUCUAU 151 ATAGAAGG GGCTAGCTACAACGA ATCATCAA 2479			146	ACACCCTG GGCTAGCTACAACGA CTTGTCTT	2474
650 GGGUGUUG A UGAUGCCU 149 AGGCATCA GGCTAGCTACAACGA CAACACCC 2477 653 UGUUGAUG A UGCCUUCU 150 AGAAGGCA GGCTAGCTACAACGA CATCAACA 2478 655 UUGAUGAU G CCUUCUAU 151 ATAGAAGG GGCTAGCTACAACGA ATCATCAA 2479	644	AAGACAGG G UGUUGAUG	147	CATCAACA GGCTAGCTACAACGA CCTGTCTT	2475
653 UGUUGAUG A UGCCUUCU 150 AGAAGGCA GGCTAGCTACAACGA CATCAACA 2478 655 UUGAUGAU G CCUUCUAU 151 ATAGAAGG GGCTAGCTACAACGA ATCATCAA 2479	646	GACAGGGU G UUGAUGAU	148	ATCATCAA GGCTAGCTACAACGA ACCCTGTC	2476
655 UUGAUGAU G CCUUCUAU 151 ATAGAAGG GGCTAGCTACAACGA ATCATCAA 2479	650	GGGUGUUG A UGAUGCCU	149	AGGCATCA GGCTAGCTACAACGA CAACACCC	2477
	653	UGUUGAUG A UGCCUUCU	150	AGAAGGCA GGCTAGCTACAACGA CATCAACA	2478
662 UGCCUUCU A UACAUUAG 152 CTAATGTA GGCTAGCTACAACGA AGAAGGCA 2480	655	UUGAUGAU G CCUUCUAU	151	ATAGAAGG GGCTAGCTACAACGA ATCATCAA	2479
2400	662	UGCCUUCU A UACAUUAG	152	CTAATGTA GGCTAGCTACAACGA AGAAGGCA	2480

664	CCUUCUAU A CAUUAGUU	153	AACTAATG GGCTAGCTACAACGA ATAGAAGG	2481
666	UUCUAUAC A UUAGUUCG	154	CGAACTAA GGCTAGCTACAACGA GTATAGAA	2482
670	AUACAUUA G UUCGAGAA	155	TTCTCGAA GGCTAGCTACAACGA TAATGTAT	2483
679	UUCGAGAA A UUCGAAAA	156	TTTTCGAA GGCTAGCTACAACGA TTCTCGAA	2484
687	AUUCGAAA A CAUAAAGA	157	TCTTTATG GGCTAGCTACAACGA TTTCGAAT	2485
689	UCGAAAAC A UAAAGAAA	158	TTTCTTTA GGCTAGCTACAACGA GTTTTCGA	2486
700	AAGAAAAG A UGAGCAAA	159	TTTGCTCA GGCTAGCTACAACGA CTTTTCTT	2487
704	AAAGAUGA G CAAAGAUG	160	CATCTTTG GGCTAGCTACAACGA TCATCTTT	2488
710	GAGCAAAG A UGGUAAAA	161	TTTTACCA GGCTAGCTACAACGA CTTTGCTC	2489
713	CAAAGAUG G UAAAAAGA	162	TCTTTTTA GGCTAGCTACAACGA CATCTTTG	2490
732	AAAAAGAA G UCAAAGAC	163	GTCTTTGA GGCTAGCTACAACGA TTCTTTTT	2491
739	AGUCAAAG A CAAAGUGU	164	ACACTTTG GGCTAGCTACAACGA CTTTGACT	2492
744	AAGACAAA G UGUGUAAU	165	ATTACACA GGCTAGCTACAACGA TTTGTCTT	2493
746	GACAAAGU G UGUAAUUA	166	TAATTACA GGCTAGCTACAACGA ACTTTGTC	2494
	CAAAGUGU G UAAUUAUG	167	CATAATTA GGCTAGCTACAACGA ACACTTTG	2495
748	AGUGUGUA A UUAUGUAA	168	TTACATAA GGCTAGCTACAACGA TACACACT	2496
751	GUGUAAUU A UGUAAAUA	169	TATTTACA GGCTAGCTACAACGA AATTACAC	2497
754	GUAAUUAU G UAAAUACA	170	TGTATTTA GGCTAGCTACAACGA ATAATTAC	2498
756	<del></del>	171	AAATTGTA GGCTAGCTACAACGA TTACATAA	2499
760	UUAUGUAA A UACAAUUU	172	ACAAATTG GGCTAGCTACAACGA ATTTACAT	2500
762	AUGUAAAU A CAAUUUGU		AGTACAAA GGCTAGCTACAACGA TGTATTTA	2501
765	UAAAUACA A UUUGUACU	173	AAAAAGTA GGCTAGCTACAACGA AAATTGTA	2502
769	UACAAUUU G UACUUUUU	174	GAAAAAG GGCTAGCTACAACGA ACAAATTG	2503
771	CAAUUUGU A CUUUUUUC	175	CTAGTATG GGCTAGCTACAACGA CTTAAGAA	2504
785	UUCUUAAG G CAUACUAG	176	TACTAGTA GGCTAGCTACAACGA GCCTTAAG	2505
787	CUUAAGGC A UACUAGUA	177	TGTACTAG GGCTAGCTACAACGA ATGCCTTA	2506
789	UAAGGCAU A CUAGUACA	178	CACTTGTA GGCTAGCTACAACGA TAGTATGC	2507
793	GCAUACUA G UACAAGUG	179	ACCACTTG GGCTAGCTACAACGA ACTAGTAT	2508
795	AUACUAGU A CAAGUGGU	180	ACCACTIG GGCTAGCTACAACGA TTGTACTA  AATTACCA GGCTAGCTACAACGA TTGTACTA	2509
799	UAGUACAA G UGGUAAUU	181	AAAAATTA GGCTAGCTACAACGA CACTTGTA	2510
802	UACAAGUG G UAAUUUUU	182	TACAAAAA GGCTAGCTACAACGA TACCACTT	2511
805	AAGUGGUA A UUUUUGUA	183		2512
811	UAAUUUUU G UACAUUAC	184	GTAATGTA GGCTAGCTACAACGA AAAAATTA	2513
813	AUUUUUGU A CAUUACAC	185	GTGTAATG GGCTAGCTACAACGA ACAAAAAT	2514
815	UUUUGUAC A UUACACUA	186	TAGTGTAA GGCTAGCTACAACGA GTACAAAA	2515
818	UGUACAUU A CACUAAAU	187	ATTTAGTG GGCTAGCTACAACGA AATGTACA	2516
820	UACAUUAC A CUAAAUUA	188	TAATTTAG GGCTAGCTACAACGA GTAATGTA	2517
825	UACACUAA A UUAUUAGC	189	GCTAATAA GGCTAGCTACAACGA TTAGTGTA	2518
828	ACUAAAUU A UUAGCAUU	190	AATGCTAA GGCTAGCTACAACGA AATTTAGT	2519
832	AAUUAUUA G CAUUUGUU	191	AACAAATG GGCTAGCTACAACGA TAATAATT	<del></del>
834	UUAUUAGC A UUUGUUUU	192	AAAACAAA GGCTAGCTACAACGA GCTAATAA	2520
838	UAGCAUUU G UUUUAGCA	193	TGCTAAAA GGCTAGCTACAACGA AAATGCTA	2521
844	UUGUUUUA G CAUUACCU	194	AGGTAATG GGCTAGCTACAACGA TAAAACAA	2522
846	GUUUUAGC A UUACCUAA	195	TTAGGTAA GGCTAGCTACAACGA GCTAAAAC	2523
849	UUAGCAUU A CCUAAUUU	196	AAATTAGG GGCTAGCTACAACGA AATGCTAA	2524
854	AUUACCUA A UUUUUUUC	197	GAAAAAA GGCTAGCTACAACGA TAGGTAAT	2525
865	UUUUUCCU G CUCCAUGC	198	GCATGGAG GGCTAGCTACAACGA AGGAAAAA	2526
870		199	AGTCTGCA GGCTAGCTACAACGA GGAGCAGG	2527
872			ACAGTCTG GGCTAGCTACAACGA ATGGAGCA	2528
876		201	GCTAACAG GGCTAGCTACAACGA CTGCATGG	2529
879			AAAGCTAA GGCTAGCTACAACGA AGTCTGCA	2530
883			GGTAAAAG GGCTAGCTACAACGA TAACAGTC	2531
			ATTTAAGG GGCTAGCTACAACGA AAAAGCTA	2532

898   CCUURANU G CUURIAUUU   206   AANTRAG GGCTAGCTACACGA ATTTARG   2534   902   AANIGCUU A UUUURAAA 207   TITTARAN GGCTAGCTACACGA AGCATTT   2535   913   AUUUURAAA UGACAGUG   208   CACTOTCA GGCTAGCTACACACGA ATTTARAN   2536   913   AUUUURAAA UGACAGUG   209   TICCACTG GGCTAGCTACACACGA CATTTTARA   2537   914   AANAGCAG GUGGAAGUU   210   AACTTCCA GGCTAGCTACACACGA CATTTTARA   2537   915   AANAGCAG GUGGAAGUU   211   AANAANAA GGCTAGCTACACACGA TTCCACTG   2539   922   CAGUGGAA G UUUUUUUU   211   AANAANAA GGCTAGCTACACACGA TTCCACGG   2540   939   UCCUCGAA G UGCCAGUA   212   TACTGGCA GGCTAGCTACAACGA TTCCACGG   2541   941   CUCGAAGU G CCAGUUA   213   AATACTGG GGCTAGCTACAACGA TCCACGG   2541   945   AAGUGCCAG G UAUUCCCAC   214   TGGGAATA GGCTAGCTACAACGA TCTCGAG   2541   946   AAGUGCAGU A UUUUGGAA   215   TCTGGGAA GGCTAGCTACAACGA ACTTCGAG   2542   947   GUGCCAGU A UUUUGGAU   216   AACCANAA GGCTAGCTACAACGA TCTGGGAA   2544   952   GAGUUUUG G UUUUUGGA   217   TTCAAAAA GGCTAGCTACAACGA TCTGGGAA   2544   952   GAGUUUUG G UUUUUGAA   218   ATTGCTAG GGCTAGCTACAACGA TCTGGGAA   2544   974   UUGAACUA G CAAUGCCU   219   AGGCATTG GGCTAGCTACAACGA TCAAAACT   2545   975   GUUUUUGA A CUGGCAGU   220   CAAGGCA GGCTAGCTACAACGA TCAAACAC   2549   979   CUAGCAAU G CCUGUGAA   221   TTCACAGG GGCTAGCTACAACGA TGCTACTC   2549   979   CUAGCAAU G CCUGUGAA   221   TTCACAGG GGCTAGCTACAACGA TTCGTATC   2549   983   CAAUGCCU G UGAAAAAG   222   CTTATTCA GGCTAGCTACAACGA TTCGTTC   2549   984   AANAAGAA A CUGAAAGU   223   GTATTCAG GGCTAGCTACAACGA TTCGTTTC   2559   985   CAAUGCCU G UGAAAAAG   222   CTTATTCAG GGCTAGCTACAACGA TTCGTTTC   2559   986   GAAUGUGU G UGAAAAGG   224   CTTAGGTA GGCTAGCTACAACGA TTCGTTTC   2559   1001   AACGGAA UUCCUGGG   227   CCCCAAGA GGCTAGCTACAACGA TTCGTTTC   2559   1002   GGUUUUUG G UGCAGGCA   225   GCCCAAGA GGCTAGCTACAACGA CTTACGTT   2554   1004   AGAUUUCU G UCUAGAGU   225   GCCCAAGA GGCTAGCTACAACGA CTTACGTT   2555   1005   GGUUUUUG G UGCAGGAG   227   CCCCAAGA GGCTAGCTACAACGA CTTACGTT   2556   1006   UUCCCAGAGU   227   CCCCAAGA GGCTAGCTAC		· · · · · · · · · · · · · · · · · ·			
902 AAAUGCUU A UUUUAAAA 207 TITTARAM GCTAGCTACCACGA AGCATTT 2535 910 AUUUUAAAA A UGACAGUG 208 CACTGTCA GGCTAGCTACAACGA TITAAAAT 2536 913 UUUAAAUG A CAGUGGAA 209 TICCACTG GGCTAGCTACAACGA CATTTAAA 2537 914 AAAUGACA G UGGAAGUU 210 AACTTCCA GGCTAGCTACAACGA TOTCACTT 2538 922 CAGUGGAA G UUUUUUUU 211 AAAAAAAA GGCTAGCTACAACGA TTCCACTG 2539 939 UCCUCGAA G UGCCAGUA 212 TACTGGGA GGCTAGCTACAACGA TTCCACTG 2539 941 CUCGAAGU G CCAGUAUU 213 AATACTGG GGCTAGCTACAACGA TTCCACTG 2539 945 AAGUGCCA G UAUUCCCA 214 TGGGAATA GGCTAGCTACAACGA TTCCACTG 2549 946 AAGUGCCA G UAUUCCCA 214 TGGGAATA GGCTAGCTACAACGA TCTCGAGGA 2541 947 GUGCCAGU A UUCCCAGA 215 TCTAGGAA GGCTAGCTACAACGA TCTCGAGGA 2541 948 AAGUGCCA G UUUUGGUU 216 AACCAAAA GGCTAGCTACAACGA TCTGAGGAA 2541 949 GUGCAGU A UUCCCAGA 215 TCTAGGAA GGCTAGCTACAACGA TCTGAGGAA 2541 949 GUUUUGA A CUMGCUU 216 AACCAAAA GGCTAGCTACAACGA TCTGAGGAA 2544 949 GUUUUGAACU 218 ATTGCTAG GGCTAGCTACAACGA TCTGAGAAA 2546 940 GUUUUGAACU 318 ATTGCTAG GGCTAGCTACAACGA TCAAAAAC 2546 941 GUGAACUG CAAUGCCU 219 AGCATTG GGCTAGCTACAACGA TAGATCAA 2546 942 GAGUUUUG G CUUGUGAA 221 TTCAAAAA GGCTAGCTACAACGA TAGATCAA 2546 943 UAGACUA G CAUUGCCU 219 AGCATTG GGCTAGCTACAACGA TAGATCAA 2546 944 UAGACUA G CAUUGCCU 219 AGCATTG GGCTAGCTACAACGA TAGATCAA 2546 945 CUAGCAAU G CCUGUGAA 221 TTCACAGG GGCTAGCTACAACGA TAGTTCAA 2546 946 CUAGAACGA UACCCUAG 221 TTCACAGG GGCTAGCTACAACGA TATTGCTAG 2549 947 AAAAGAAA A CUGAAAACC 223 CTTTTCA GGCTAGCTACAACGA TTCTTTTT 2551 1008 UACCUAAG A UUCCUGUC 226 GCTAGCTACAACGA TTCTTTTT 2551 1008 UACCUAAG A UUCCUGUC 226 GCAAGAAG GCTTAGCTACAACGA TCCATTTT 2552 1001 AACGAAU A CCUAAGAU 223 GTATTCAG GGCTAGCTACAACGA TCCATTTT 2552 1002 GGUUUUG G UCUUGAGG 227 CCCCAAGA GGCTAGCTACAACGA TCCATTTT 2552 1001 AACGAAU A CCUAAGAU 225 ATCTTAGG GGCTAGCTACAACGA ATCAGTT 2552 1002 GUUUUG GUUUUGGU 226 GACAGAAA GGCTTAGCTACAACGA TCCATTTT 2552 1002 GUUUUGG G UUUUUGGU 226 GACAGAAA GGCTAGCTACAACGA ATCAGCT 2552 1003 UUUUGGUG A UGCAGCAG 227 CCCCAAGA GGCTAGCTACAACGA ATCAGAT 2552 1014 AGGUUUUG A UUUUGUUU 226 GACAGAAA GGCTAGCTACAACGA AGAAATAC 2556 102	896	UACCUUAA A UGCUUAUU	205	AATAAGCA GGCTAGCTACAACGA TTAAGGTA	2533
910 AUUUUAAA A UGACAGUG 208 CACTGTCA GGCTAGCTACAACGA TTTAAAAT 2536 911 UUAAAAUG A CAGUGGAA 209 TTCCACTG GGCTAGCTACAACGA CATTTTAAA 2537 916 AAAUGACA G UGAAAGUU 210 AATTCCA GGCTAGCTACAACGA CATTTTAA 2537 917 AAAUGACA G UGAAAGUU 211 AAAAAAA GGCTAGCTACAACGA TTCCACTG 2539 939 UCCUCGAA G UUUUUUUU 211 AAAAAAAA GGCTAGCTACAACGA TTCCACTG 2539 939 UCCUCGAA G UGCCAGUA 212 TACTGGCA GGCTAGCTACAACGA TTCCACGG 2541 941 CUCCAAAGU G CCAGUUA 213 AAAAAAA GGCTAGCTACAACGA ACTTCGAG 2541 945 AAGUGCCA G UAUUCCCCA 214 TGGGAATG GGCTAGCTACAACGA ACTTCGAG 2541 946 AAGUGCCAG UAUUCCCA 214 TGGGAATA GGCTAGCTACAACGA ACTTCGAG 2541 947 GUGCCAGU A UUCCCAGA 215 TCGGAGA GGCTAGCTACAACGA ACTTCGAG 2543 948 QUCCCAGA G UUUUGGUU 216 AACCAAAA GGCTAGCTACAACGA ACTGGCAC 2543 952 GAGUUUUGA G UUUUGGAA 217 TTCAAAAA GGCTAGCTACAACGA ACTGGCAC 2543 953 UUCCAGA G UUUUGGAA 217 TTCAAAAA GGCTAGCTACAACGA CAAAAACTC 2545 970 GUUUUUGA A CUAGCAAU 218 ATTGCTAG GGCTAGCTACAACGA CAAAAACTC 2546 971 QUAGACUA G CAAUGCCCU 219 AGGCATG GGCTAGCTACAACGA TAGTTCAA 2547 972 AUCAGCAA U GCCUGUGAA 221 TTCACAGG GGCTAGCTACAACGA TAGTTCAA 2547 973 CUAGCAAU G CCUGUGAA 221 TTCACAGG GGCTAGCTACAACGA ATTGCTAG 2549 983 CAAUGCCU G UGAAAAAG 222 CTTTTTCA GGCTAGCTACAACGA ATTGCTAG 2549 994 AAAAAAGAA A CUGAAUAC 223 GTATCTAG GGCTAGCTACAACGA ATTGCTAG 2559 994 GAAACGAA AUCCUAAG 224 CTTAGGTA GGCTAGCTACAACGA ATTGCTAG 2559 1001 AACCUAAG A UACCUAAG 224 CTTAGGTA GGCTAGCTACAACGA ATTGCTTT 2551 1001 AACCUAAG A UUUCUGGU 226 GACAGAAA GGCTAGCTACAACGA ATTCTTTT 2551 1002 GGUUUUUG G UCUUGGGG 227 CCCCAAGA GGCTAGCTACAACGA ATTCAGTT 2552 1020 GGUUUUG G UCUUGGGG 227 CCCCAAGA GGCTAGCTACAACGA ATTCAGTT 2552 1020 GGUUUUG G UCUUGGGG 227 CCCCAAGA GGCTAGCTACAACGA ATCAGTT 2552 1021 GUCUUGGG G UUUUGGGU 228 ACCAAAA GGCTAGCTACAACGA ATCAGTT 2552 1022 GGUUUUG G UCUUGGGG 227 CCCCAAGA GGCTAGCTACAACGA ATCAGTT 2552 1029 GGUUUUG G UCUUGGGG 227 CCCCAAGA GGCTAGCTACAACGA ATCAGTT 2552 1029 GGUUUUG G UCUUGGGG 227 CCCCAAGA GGCTAGCTACAACGA ATCAGTT 2552 1029 GGUUUUG G UCUUGGGG 227 CCCCAAGA GGCTAGCTACAACGA ATCAGTT 2552 1029 GGUUUUG G UCUUGGGG 227 CCCCAAGA GGC	898	CCUUAAAU G CUUAUUUU	206	AAAATAAG GGCTAGCTACAACGA ATTTAAGG	2534
910 AUUUUAAA A UGACAGUU 209 TTCCACTG GGCTAGCTACAACGA TTTAAAAT 2536 913 UUAAAAUG A CAGUGGAA 209 TTCCACTG GGCTAGCTACAACGA CATTTTAA 2537 914 AAAUGACA G UUGAAGUU 210 AACTTCCA GGCTAGCTACAACGA CATTTTAA 2537 922 CAGUGGAA G UUUUUUUU 211 AAAAAAAA GGCTAGCTACAACGA TTCCACTG 2539 939 UCCCGAAG G UUUUUUUU 212 AAAAAAAA GGCTAGCTACAACGA TTCCACTG 2539 941 CUCGAAGU G CCAGUUU 213 AATACTGG GGCTAGCTACAACGA TTCCACTG 2540 945 AAGUGCCA G UUUUCCCAC 214 TGGGAATA GGCTAGCTACAACGA ACTCCACT 2542 947 GUGCCAGU A UUUCCCACA 215 TCTGGAA GGCTAGCTACAACGA ACTCCACC 2543 948 AAAGUGCCA G UUUUGGUU 216 AACCAAAA GGCTAGCTACAACGA ACTGCACA 2543 956 UUCCCAGA G UUUUGGUU 216 AACCAAAA GGCTAGCTACAACGA ACTGCACA 2543 957 GUUUUUGA C UUUUGGAA 217 TTCAAAAA GGCTAGCTACAACGA ACTGCACA 2543 970 GUUUUUGA C UUUUGAA 217 TTCAAAAA GGCTAGCTACAACGA TCAGACAC 2543 971 AUGAACUA G CAAUGCCU 219 AGGCATG GGCTAGCTACAACGA TCAGACAC 2543 973 UUGAACUA G CAAUGCCU 219 AGGCATG GGCTAGCTACAACGA TAGTTCAA 2546 974 AUGAACUA G CCUGUGAA 221 TTCACAGG GGCTAGCTACAACGA TAGTTCAA 2547 975 ACUACCAAU G CCUGUGAA 221 TTCACAGG GGCTAGCTACAACGA ATTGCTAGA 2549 978 CUACCAAU G CCUGUGAA 221 TTCACAGG GGCTAGCTACAACGA ATTGCTAG 2549 979 CUACCAAU G CCUGUGAA 221 TTCACAGG GGCTAGCTACAACGA ATTGCTAG 2559 979 AAAAAAAAAAA ACCUAAG 224 CTTAGGTA GGCTAGCTACAACGA ATTGCTTAG 2559 979 AAAACGAA A UACCUAAG 224 CTTAGGTA GGCTAGCTACAACGA TCTGTTTT 2551 1001 AACCUAAG A UUCUUGGU 225 GACAGAAA GGCTAGCTACAACGA TCTGTTT 2551 1002 GUCUUUGG UCUAAGAG 224 CTTAGGTA GGCTAGCTACAACGA TCTTTTT 2551 1003 UACCUAAG A UUCUUGGU 225 GACAGAAA GGCTAGCTACAACGA TCTATTTT 2551 1004 UACCUAAG A UUCUUGGU 226 GACAGAAA GGCTAGCTACAACGA TCTATTTT 2551 1005 UACCUAAG A UUCUUGGU 226 GACAGAAA GGCTAGCTACAACGA TCTAGGTT 2552 1001 AACCUAAG A UUUUUGGU 226 GACAGAAA GGCTAGCTACAACGA TCTAGGTT 2552 1002 GUCUUUGG UUUUGGU 227 CCCCAAGA GGCTAGCTACAACGA ATCACTTTTT 2551 1004 UUCUUGU G UCUAAGAG 227 CCCCAAGA GGCTAGCTACAACGA ATCACTTTTT 2551 1005 UUCUGAG G UUUUGGU 228 ACCAAAA GGCTAGCTACAACGA ATCACTT 2552 1020 GUUUUUG G UACAUACA 229 TCCCCAAGA GGCTAGCTACAACGA ATCACAC 2552 1021 UUUUGGU G CAUGAGAG 228 ACCACA	902	AAAUGCUU A UUUUAAAA	207		2535
916 AAAUGACA G UGGAAGUU 210 AACTTCCA GGCTAGCTACAACGA TOTCATTT 2538 922 CAGUGGAA G UUUUUUUUU 211 AAAAAAAA GGCTAGCTACAACGA TOTCCACTO 2539 939 UCCUCGAA G UUUUUUUU 211 AAAAAAAA GGCTAGCTACAACGA TOTCCACTO 2539 941 CUCGAAGU G CCAGUAUU 213 AATACTGG GGCTAGCTACAACGA TOTCGAGG 2540 941 CUCGAAGU G CCAGUAUU 213 AATACTGG GGCTAGCTACAACGA ACTTCGAG 2541 945 AAGUGCCA G UAUUCCCA 214 TGGGAATA GGCTAGCTACAACGA ACTTGGAG 2541 946 AGUGCCAG G UUUUCGAGA 215 TCTGGGAA GGCTAGCTACAACGA ACTGGCAC 2543 947 GUGCCAGA G UUUUCGAGA 215 TCTGGGAA GGCTAGCTACAACGA ACTGGCAC 2543 956 UUCCCAGA G UUUUUGAU 216 AACCAAAA GGCTAGCTACAACGA TCTGGGAA 2546 952 GAGUUUUG G UUUUGAA 217 TTCAAAAA GGCTAGCTACAACGA CAAAACTC 2545 970 GUUUUGA A CUAGCAAU 218 ATTGCTAG GGCTAGCTACAACGA TCAAAAACC 2546 974 UUGAACUA G CAAUGCCU 219 AGGCATTG GGCTAGCTACAACGA TCAAAAACC 2546 975 GUUCUCCAG UUUUGAA 221 TTCACAGG GGCTAGCTACAACGA TCATACAC 2545 977 AACUAGCA A UGCCUUGG 220 CACAGGCA GGCTAGCTACAACGA TCATACAC 2549 979 CUAGCAAU G CCUGUGAA 221 TTCACAGG GGCTAGCTACAACGA TCTCTAGG 2549 979 CUAGCAAU G CCUGUGAA 221 TTCACAGG GGCTAGCTACAACGA TCTCTTTT 2551 979 GAACCGA A UACCUAAG 222 CTTTTTCA GGCTAGCTACAACGA TTCTTTTT 2551 1001 AACUGAUA UACCUAAG 224 CTTAGGTA GGCTAGCTACAACGA TTCTTTTT 2551 1002 GUCUUGGA A UUCCUGC 226 GACAGAA GGCTAGCTACAACGA TTCTTTTT 2551 1003 UACCUAAG A UUCCUGC 226 GACAGAA GGCTAGCTACAACGA TTCAGTTT 2551 1004 UACCUAAG A UUUCUGUC 226 GACAGAA GGCTAGCTACAACGA TTCAGTT 2553 1005 UACCUAAG A UUUCUGUC 226 GACAGAA GGCTAGCTACAACGA CTTAGGTA 2554 1014 AGAUUUCU G UUUUGGU 227 CCCCAAGA GGCTAGCTACAACGA CTTAGGTA 2554 1022 GGCUUUGGG G CUUUUGGU 228 ACCAAAAA GGCTAGCTACAACGA CTTAGGTA 2554 1021 GUUUUGGU G CAUGCAGU 229 TGCATCGA GGCTAGCTACAACGA CCCAAAAACC 2556 1029 GGUUUUUG G UGCAUGCA 229 TGCATCGA GGCTAGCTACAACGA ACCAAAAA 1020 GGUUUUG G UUUUGUU 228 ACCAAAAA GGCTAGCTACAACGA ACCAAAAA 1020 GGUUUUG G UUGAGUGA 230 ACTGCATG GGCTAGCTACAACGA ACCAAAAA 1020 GGUUUUG G UGCAUGCAU 230 ACTGCATG GGCTAGCTACAACGA ACCAAAAA 1030 UUUUGGUC A UGCAUUGA 231 GATAATA GGCTAGCTACAACGA ACCAAAAA 1031 UUUUGGUC A UGCAUGAU 231 CAACTGCA GGCTAGCTACAACGA ACC	910	AUUUUAAA A UGACAGUG	208	CACTGTCA GGCTAGCTACAACGA TTTAAAAT	2536
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922         CAGUGGAA G UUUUUUUU 211         AAAAAAA GGCTAGCTACAAGA TTCCACCA         2539           939         UCCUCGAA G UGCCAGUA         212         TACTGGCA GGCTAGCTACAAGGA TTCCAGGA         2541           941         CUCGAAGU G CCAGUAUU         213         AAATACTG GGCTAGCTACAAGGA ACTTCGAG         2541           945         AAGUGCCAG UAUUCCCAG         214         TGGGAATA GGCTAGCTACAAGGA TCTGGAC         2543           956         UUCCCAGA G UUUUGGA         215         TCTGGGAA GGCTAGCTACAAGGA TCTGGGAA         2544           962         GAGUUUUG G UUUUUGAA         217         TTCAAAAA GGCTAGCTACAAGGA TCAAAAACC         2546           970         GUUUUUGA C AUGACAAU         218         ATTGCTAG GGCTAGCTACAACGA TCAAAAACC         2546           974         UUGAACUA G CAUGCCU         219         AGGCATTG GGCTAGCTACAACGA TCAAAAACC         2546           974         UUGAACUA G CAUGCCU         219         AGGCATTG GGCTAGCTACAACGA TCTGTTCA         2547           977         AACUAGAA U GCCUGUGA         221         TCTACAGG GGCTAGCTACAACGA TTCCTTTCA         2549           983         CAAUGCCU G UGAAAAAG         222         CTTTTCACAGG GGCTAGCTACAACGA TTCCTTTTT         2552           994         AAAAAGAA A UACCUAAG         222         CTTTAGGTA GGCTACAACGA TTCCTTTTT         2552	916	AAAUGACA G UGGAAGUU	210		2538
941 CUCGARGU G CCAGUAUU 213 AATACTEG GGCTAGCTACAACGA ATTCGAGGA 2540 941 CUCGARGU G CCAGUAUU 213 AATACTEG GGCTAGCTACAACGA ACTTCGAG 2541 945 AAGUGCCA G UAUUCCCA 214 TEGGARTA GGCTAGCTACAACGA TGCCACT 2524 947 GUGCCAGU A UUCCCAGA 215 TCTGGGAA GGCTAGCTACAACGA TGCCACCT 2543 956 UUCCCAGA G UUUUGGUU 216 AACCAAAA GGCTAGCTACAACGA ACTGGCAC 2543 962 GAGUUUUG G UUUUUGAA 217 TTCAAAAA GGCTAGCTACAACGA CAAAACT 2546 970 GUUUUGAA A CUAGCAAU 218 ATTGCTAG GGCTAGCTACAACGA CAAAACT 2546 971 UUGAACUA G CAAUGCCU 219 AGGCATTG GGCTACAACGA TACATAAAC 2546 972 UUGAACUA G CAAUGCCU 219 AGGCATTG GGCTAGCTACAACGA TACATAAC 2546 973 CAAUGCCU G UGAAAAAG 221 TTCACAAG GGCTAGCTACAACGA TACTTGAT 2548 974 CUAGCAAU G CCAUGAGA 221 TTCACAGG GGCTAGCTACAACGA TACTTGAT 2548 975 CAAUGCCU G UGAAAAAG 222 CTTTTTCA GGCTAGCTACAACGA TACTTGAT 2548 978 CAAUGCCU G UGAAAAAG 222 CTTTTTCA GGCTAGCTACAACGA TACTTGAT 2559 979 AAAACUGA A UACCUAAG 224 CTTAGGTA GGCTAGCTACAACGA TTCTTTT 2551 1001 AACUGAAU A CCUAAGGA 224 CTTAGGTA GGCTAGCTACAACGA TTCTTTTT 2551 1002 MACUGAA A UUCUUUGU 225 ATCTTAGG GGCTAGCTACAACGA TTCTTTTT 2551 1003 UACCUAAG A UUUUUGU 226 GACAGAAA GGCTAGCTACAACGA ATTCAGTT 2554 1014 AGAUUUCU G UCUUGGGG 227 CCCCAAGA GGCTAGCTACAACGA ATTCAGTT 2554 1024 GGUUUUUG G UCUUGGGG 227 CCCCAAGA GGCTAGCTACAACGA ATTCAGTT 2554 1025 GGUUUUUG G UCUUGGGG 227 CCCCAAGA GGCTAGCTACAACGA ATTCAGTT 2554 1026 GGUUUUG G UGCAUGCA 229 TCCAAAGA GGCTAGCTACAACGA ATCAGTT 2554 1027 GGUUUUG G UGCAUGCA 229 TCCAACAGA GGCTAGCTACAACGA ACAAAAA 2555 1028 GGUUUUG G UGCAUGCA 229 TCCAACAG GGCTAGCTACAACGA ACAAAAA 2556 1029 GGUUUUG G UGCAUGCA 229 TCCAACAG GGCTAGCTACAACGA CCCAAGAC 2556 1029 GGUUUUG G UGCAUGCA 229 TCCAACAG GGCTAGCTACAACGA CCCAAGAC 2556 1029 GGUUUUG G UGCAUGCA 229 TCCAACAG GGCTAGCTACAACGA ACAAAAA 2559 1031 UUUUGGUG A CUGCAGUG 231 CACACGCA GGCTAGCTACAACGA CACAAAAA 2559 1035 UGCUGAG G UUGAUUUG 234 ACACGCA GGCTAGCTACAACGA ATCAACT 2556 1045 AGUUUGU A UUUUGUU 234 ACACGCA GGCTAGCTACAACGA ATCAACT 2560 1046 AGUUUGU A CCAAGAGU 234 ATCAACTA GGCTAGCTACAACGA ATCAACT 2561 1047 AGUUUGUU A CCAAGUGU 234 ACACTACA GGCTAGCT	922	CAGUGGAA G UUUUUUUU	211		
941         CUCGAAGU G CAGUAUU         213         AATACTGG GGCTAGCACAGA ACTTCGAG         2541           945         AAGUGCCA G UAUUCCCA         214         TGGGAATA GGCTAGCACAGAA TGGCACT         2543           947         GUGCCAGU A UUCCCAGA         215         TTGGGAATA GGCTAGCACAGAGA ACTGGCAC         2543           956         UUCCCAGA G UUUUUGA         216         AACCAAAA GGCTAGCTACAAGGA TCTGAGAA         2544           972         GUUUUUGA A CUAGCAAU         218         ATTGCTAG GGCTAGCTACAAGGA TCATAAAAAC         2546           973         UUGAACUA G CAAUGCCU         219         AGGCATTG GGCTAGCTACAAGGA TAGTTCAA         2547           977         AACUAGAA U GCCUGUG         220         CACAGGCA GGCTAGCTACAACGA TGCTAGTA         2547           977         AACUAGCA A UGCCUGUG         220         CACAGGCA GGCTAGCTACAACGA TGCTAGT         2549           978         CLAGCAAU G CCUGUGAA         221         TTCACAGG GGCTAGCTACAACGA ATTCCTTGT         2559           983         CAAUGCCU G UGAAAAAG         221         TTTCACAGG GGCTAGCTACAACGA ATTCTTTT         2551           999         GAAACUGA A UACCUAG         224         CTTAGGTA GGCTACAACGA TTCATCTT         2552           1008         ACCUAAAA         225         ATCTTAGG GGCTAGCTACAACGA TTCATCTT         2553	939	UCCUCGAA G UGCCAGUA	212		
945         AAGUGCCA G         UNUCCCAGA         215         TGGGARTA GGCTACCAAACGA TGGCACT         2542           947         GUGCCAGU A         1UCCCAGA         215         TCTGGGAA GGCTACCTACAACGA ACTGGCAC         2543           956         UUCCCAGA G         UUUUUGAA         217         TTCAAAAA GGCTACCTACAACGA CAAAACTC         2545           970         GUUUUGA A         CUAGCAAU         218         ATTGCTAG         GGCTAGCTACAACGA TCAAAAAC         2546           974         UUGAACUA G         CAAUGCCU         219         AGGCATTG         GGCTAGCTACAACGA TCAATAAAC         2547           977         ACUAGCAU G         CCUGUGA         221         TTCACAGG GGCTAGCTACAACGA TGCTAGT         2549           983         CAAUGCCU G         UGAAAAAG         222         CTTTTCA GGCTAGCTACAACGA TGCTAT         2559           994         AAAAGAA A         CUCAAGA         222         CTTTTCAGGG GGCTAACCAACGA TTCTTTTT         2551           1001         AACUAGAA UACCUAAG         222         CTTTAGGTA GGCTAACAACGA TTCTGTT         2552           1001         AACCAAAA UACCUAAG         225         ATCTTAGG GGCTAGCTTACAACGA TCTGTGT         2553           1001         AACCAAAA UUUCUUCUAC         226         GACAAAAA GGCTACCTACAACGA CTTAGTT         2554 <tr< td=""><td>941</td><td>CUCGAAGU G CCAGUAUU</td><td>213</td><td></td><td>······</td></tr<>	941	CUCGAAGU G CCAGUAUU	213		······
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1001   AACUGAAU A CCUAAGAU   225   ATCTTTAGG GGCTAGCTACAACGA ATTCAGTT   2553     1008   UACCUAAG A UUUCUGUC   226   GACAGAAA GGCTAGCTACAACGA ATTCAGTA   2554     1014   AGAUUUCU G UCUUGGGG   227   CCCCAAGA GGCTAGCTACAACGA CCTAGGTA   2555     1022   GUCUUGGG G UUUUUGGU   228   ACCAAAAA GGCTAGCTACAACGA CCCAAGAC   2556     1029   GGUUUUUG G UGCAUGCA   229   TGCATGCA GGCTAGCTACAACGA CCCAAGAC   2557     1031   UUUUUGGU G CAUGCAGU   230   ACTGCATG GGCTAGCTACAACGA CCCAAAAA   2558     1033   UUUGGUGC A UGCAGUU   231   CAACTGCA GGCTAGCTACAACGA CCACAAA   2559     1035   UGGUGCAU G CAGUUGAU   232   ATCAACTG GGCTAGCTACAACGA ATGCACCA   2560     1038   UGCAUGCA G UUGAUUAC   233   GTAATCAA GGCTAGCTACAACGA ATGCACCA   2560     1042   UGCAGUUG A UUACUUCU   234   AGAAGTAA GGCTAGCTACAACGA TAGCACCA   2561     1045   AGUUGAU A CUUCUUAU   235   ATAAGAAG GGCTAGCTACAACGA ATCAACT   2563     1052   UACUUCUU A UUUUUCUU   236   AAGAAAAA GGCTAGCTACAACGA ATCAACT   2563     1052   UACUUCUU A UUUUUCUU   236   AAGAAAAA GGCTAGCTACAACGA AAGAAATAA   2558     1066   CUUACCAAG G UGGAAUGU   237   ACACTTGG GGCTAGCTACAACGA AAGAAAAA   2565     1066   CUUACCAAG G UGGAAUGU   237   ACACTTGG GGCTAGCTACAACGA AAGAAAAA   2566     1068   UACCAAGU G UGGAAUGU   239   AACATTCA GGCTAGCTACAACGA ATCAACT   2567     1072   AAGUUGAA G UUGGUUG   240   CACCAACA GGCTAGCTACAACGA ATCAACT   2567     1073   AAGUUGA G UUGGUUG   240   CACCAACA GGCTAGCTACAACGA ATCAACT   2569     1074   GUGUGAAU G UUGGUUG   240   CACCAACA GGCTAGCTACAACGA ATCAACT   2569     1075   GAAUGUUG G UGAAACA   242   GTTTCACA GGCTAGCTACAACGA ATTCACAC   2569     1076   GAAUGUUA G UUGGUUG   240   CACCAACA GGCTAGCTACAACGA ATCAACT   2567     1071   AAGUUGAA A CAAAUUAA   244   TTAATTTG GGCTAGCTACAACGA ATCAACT   2571     1085   GGUGGAA A CAAAUUAA   244   TTAATTTG GGCTAGCTACAACGA TTCACAC   2572     1093   ACAAAUUA A UGAAGCUU   246   AAGCTTCA GGCTAGCTACAACGA TTCACAC   2572     1093   ACAAAUUA A UGAAGCUU   246   AAGCTTCA GGCTAGCTACAACGA TTCATCAC   2572     1093   ACAAAUUA A UGAAGCUU   246   AAGCTTCA GGCTAGCTACAACGA					
1008	<b> </b>				
1014					
1022   GUCUUGGG G UUUUUGGU   228   ACCAAAAA GGCTAGCTACAACGA CCCAAGAC   2557					
1029   GGUUUUUG G UGCAUGCA   229   TGCATGCA GGCTACCTACAACGA CAAAAAACC   2557					
1031   UUUUUGGU G CAUGCAGU   230   ACTGCATG GGCTACCTACAACAA   2558   1033   UUUUGGUGC A UGCAGUUG   231   CAACTGCA GGCTAGCTACAACGA ACCACAAA   2559   1035   UUGGUGCAU G CAGUUGAU   232   ATCAACTG GGCTAGCTACAACGA ATGCACCA   2560   1038   UUGCAUGCAU G UUUAUUUCU   234   AGAAGTAA GGCTAGCTACAACGA CAACTGCA   2561   1042   UUGCAGUUG A UUACUUCU   234   AGAAGTAA GGCTAGCTACAACGA CAACTGCA   2562   1045   AGUUGAUU A CUUCUUAU   235   ATAAGAAG GGCTAGCTACAACGA AATCAACT   2563   1052   UACUUCUU A UUUUUCUU   236   AAGAAAAAA GGCTAGCTACAACGA AAGAAGATA   2564   1061   UUUUUCUU A CCAAGUGU   237   ACACTTGG GGCTAGCTACAACGA AAGAAGAA   2566   1066   CUUACCAA G UGUGAAUG   238   CATTCACA GGCTAGCTACAACGA AAGAAGAA   2566   1068   UACCAAGU G UGAAUGU   239   AACATTCA GGCTAGCTACAACGA ATCACTT   2567   1072   AAGUUGAA A UGUUGGUG   240   CACCAACA GGCTAGCTACAACGA ATCACACT   2568   1074   GUGUGAAU G UUGGUGUG   241   CACACCAA GGCTAGCTACAACGA ATTCACAC   2569   1078   GAAUGUU G UGAAACA   242   GTTTCACA GGCTAGCTACAACGA ATTCACAC   2567   1078   GAAUGUU G UGAAACA   243   TTGTTTCA GGCTAGCTACAACGA ACCACTT   2570   1080   AUGUUGGU G UGAAACA   243   TTGTTTCA GGCTAGCTACAACGA ACCACACT   2571   1085   GGUGIGAA A CAAAUUAA   244   TTAATTTG GGCTAGCTACAACGA TCACACTT   2573   1093   ACAAAUUA A UGAAGCUU   246   AAGCTTCA GGCTAGCTACAACGA TCACACC   2572   1089   UGAAACAA A UUAAUGAA   245   TTCATTAA GGCTAGCTACAACGA TTCATCAC   2573   1093   ACAAAUUA A UGAAGCUU   246   AAGCTTCA GGCTAGCTACAACGA TTCATCAC   2573   1093   ACAAAUUA A UGAAGCUU   246   AAGCTTCA GGCTAGCTACAACGA TTCATTAA   2575   1106   GCUUUUGA A UCCUUUGAA   247   TTCAAAAG GGCTAGCTACAACGA TTCATTAA   2575   1106   GCUUUUGA A UCCUUUUGA   249   AATAGGGA GGCTAGCTACAACGA TTCATTAA   2575   1106   GCUUUUGA A UCCUUUUU   249   AATAGGGA GGCTAGCTACAACGA TCAAAAGC   2576   1109   UUUAAUCU G UCUUUGAU   249   AATAGGGA GGCTAGCTACAACGA TCAAAAGC   2576   1109   UUUAAUCU G UCUUUUAU   250   ACACAGAA GGCTAGCTACAACGA ACAATTAA   2577   1115   UCAUCCCU A UUCUGUGU   250   ACACAGAA GGCTAGCTACAACGA ACAATTAA   2577   1116   UCAUCCU G UUUUAUC	1				
1033         UJUGGUGC A UGCAGUUG         231         CAACTGCA GGCTAGCTACAACGA GCACCAAA         2559           1035         UGGUGCAU G CAGUUGAU         232         ATCAACTG GGCTAGCTACAACGA ATGCACCA         2560           1038         UGCAUGCA G UJGAUUAC         233         GTAATCAA GGCTAGCTACAACGA TGCATGCA         2561           1042         UGCAGUUG A UJUCUUU         234         AGAAGTAA GGCTAGCTACAACGA CAACTGCA         2562           1045         AGUUGUU A CUUCUUUU         235         ATAAGAAG GGCTAGCTACAACGA AAGAAGTA         2563           1052         UACUUCUU A UJUUUUCUU         236         AAGAAAAA GGCTAGCTACAACGA AAGAAGA         2564           1061         UJUUUUCUU A CCCAAGUGU         237         ACACTTGG GGCTAGCTACAACGA AAGAAAAA         2565           1066         CUUACCAA G UGUGAAUG         238         CATTCACA GGCTAGCTACAACGA TTGGTAAG         2566           1068         UACCAAGU G UGAAUGUU         239         AACATTCA GGCTAGCTACAACGA ACTTGGTA         2567           1072         AAGUGUGA A UGUUGGUG         240         CACCAACA GGCTAGCTACAACGA ATTCACAC         2569           1078         GAAUGUUG G UGAAACA         242         GTTTCACA GGCTACCAACGA ACCAACT         2571           1080         AUGUUGGU G UGAAACA         243         TTGTTCA GGCTACCAACGA ATCACAC         2572					
1035		<del>- ·</del>			
1038					
1042         UGCAGUUG A UUACUUCU         234         AGAAGTAA GGCTAGCTACAACGA CAACTGCA         2562           1045         AGUUGAUU A CUUCUUAU         235         ATAAGAAG GGCTAGCTACAACGA AATCAACT         2562           1052         UACUUCUU A UUUUUCUU         236         AAGAAAAA GGCTAGCTACAACGA AAGAAAAA         2564           1061         UUUUUCUU A CCAAGUGU         237         ACACTTGG GGCTAGCTACAACGA AAGAAAAA         2565           1066         CUUACCAA G UGUGAAUG         238         CATTCACA GGCTAGCTACAACGA ATTGGTAA         2566           1068         UACCAAGU G UGAAUGUU         239         AACATTCA GGCTAGCTACAACGA ACTTGGTA         2567           1072         AAGUGUGA A UGUUGGUG         240         CACCAACA GGCTAGCTACAACGA ACTTCACAC         2569           1074         GUGUGAAU G UUGGUGG         241         CACACCAA GGCTAGCTACAACGA ATTCACAC         2569           1078         GAAUGUUG G UGAAACA         242         GTTTCACA GGCTAGCTACAACGA CAACAT         2570           1080         AUGUUGGU G UGAAACA         243         TTGTTTCA GGCTAGCTACAACGA TTCACACC         2572           1089         UGAAACAA A UUAAUGAA         244         TTAATTTG GGCTAGCTACAACGA TTCACACC         2572           1089         UGAAACAA A UUAAUGAA         246         AAGCTTCA GGCTAGCTACAACGA TAATTTGT         2573	<del></del>				
1045   AGUUGAUU A CUUCUUAU   235   ATAAGAAG GGCTAGCTACAACGA AATCAACT   2563					
1052         UACUUCUU A UUUUUCUU         236         AAGAAAAA GGCTAGCTACAACGA AAGAAGTA         2564           1061         UUUUUCUU A CCAAGUGU         237         ACACTTGG GGCTAGCTACAACGA AAGAAAAA         2565           1066         CUUACCAA G UGUGAAUG         238         CATTCACA GGCTAGCTACAACGA ACTAGATAG         2566           1068         UACCAAGU G UGAAUGUU         239         AACATTCA GGCTAGCTACAACGA ACTTGGTA         2567           1072         AAGUGUGA A UGUUGGUG         240         CACCAACA GGCTAGCTACAACGA ACTACACT         2568           1074         GUGUGAAU G UUGGUGUG         241         CACACCAA GGCTAGCTACAACGA ATTCACAC         2569           1078         GAAUGUUG G UGUGAAAC         242         GTTTCACA GGCTAGCTACAACGA ACCAACAT         2570           1080         AUGUUGGU G UGAAACAA         243         TTGTTTCA GGCTAGCTACAACGA ACCAACAT         2571           1085         GGUGUGAA A CAAAUUAA         244         TTAATTTG GGCTAGCTACAACGA TTCACACC         2572           1089         UGAAACAA A UUAAUGAA         245         TTCATTAA GGCTAGCTACAACGA TAATTTGT         2573           1093         ACAAAUUA A UGAAGCUU         246         AAGCTTCA GGCTAGCTACAACGA TAATTTGT         2574           1098         UUAAUGAA G CUUUUGAA         247         TTCAAAAG GGCTAGCTACAACGA TCAAAGA TCAAAGA TCAAAGA C					
1061 UUUUUCUU A CCAAGUGU 237 ACACTTGG GGCTAGCTACAACGA AAGAAAAA 2565 1066 CUUACCAA G UGUGAAUG 238 CATTCACA GGCTAGCTACAACGA ATGGTAAG 2566 1068 UACCAAGU G UGAAUGUU 239 AACATTCA GGCTAGCTACAACGA ACGAAAAA 2567 1072 AAGUGUGA A UGUUGGUG 240 CACCAACA GGCTAGCTACAACGA ACTTGGTA 2568 1074 GUGUGAAU G UUGGUGUG 241 CACACCAA GGCTAGCTACAACGA ATTCACAC 2569 1078 GAAUGUUG G UGUGAAAC 242 GTTTCACA GGCTAGCTACAACGA ATTCACAC 2569 1078 GAAUGUUG G UGAAACAA 243 TTGTTTCA GGCTAGCTACAACGA ACCAACAT 2571 1085 GGUGUGAA A CAAAUUAA 244 TTAATTTG GGCTAGCTACAACGA ACCAACAT 2571 1089 UGAAACAA A UUAAUGAA 245 TTCATTAA GGCTAGCTACAACGA TTGTTTCA 2573 1093 ACAAAUUA A UGAAGCUU 246 AAGCTTCA GGCTAGCTACAACGA TTATTTGT 2574 1098 UUAAUGAA G CUUUUGAA 247 TTCAAAAG GGCTAGCTACAACGA TCATTAA 2575 1106 GCUUUUGA A UCCCUAUU 249 AATAGGGA GGCTAGCTACAACGA TCAAAAGC 2576 1109 UUUGAAUC A UCCCUAUU 249 AATAGGGA GGCTAGCTACAACGA AGAATTCAACGA 2576 1115 UCAUCCCU A UUCUGUGU 250 ACACAGAA GGCTAGCTACAACGA AGAATAGG 2576 1120 CCUAUUCU G UGUUUUAU 251 ATAAAACA GGCTAGCTACAACGA AGAATAGG 2576 1122 UAUUCUGU G UUUUAUCU 252 AGATAAAA GGCTAGCTACAACGA ACAGAATA 2580 1127 UGUGUUU A UCUAGUCA 253 TGACTAGA GGCTAGCTACAACGA ACAGAATA 2580 1128 UUUAUCUA G UCACAUAA 254 TTATGTGA GGCTAGCTACAACGA ACAGAATA 2580 1129 UGUGUUU A UCUAGUCA 251 TGACTAGA GGCTAGCTACAACGA ACAGAATA 2580 1120 CCUAUUCU G UGUUUAUCU 252 AGATAAAA GGCTAGCTACAACGA ACAGAATA 2580 1121 UGUGUUU A UCUAGUCA 253 TGACTAGA GGCTAGCTACAACGA ACAGAATA 2580 1122 UAUUCUAG G UCUAAAACA 254 TTATGTGA GGCTAGCTACAACGA ACAGAATA 2580 1123 UUUAUCUA G UCACAUAA 254 TTATGTGA GGCTAGCTACAACGA ACAGAATA 2580 1124 UGUGUUU A UCUAGUCA 253 TGACTAGA GGCTAGCTACAACGA ACAGAATA 2580 1125 AUCUAGUC A CAUAAAUG 255 CATTTATG GGCTAGCTACAACGA GACTAGAT 2581					
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1106 GCUUUUGA A UCAUCCCU 248 AGGGATGA GGCTAGCTACAACGA TCAAAAGC 2576 1109 UUUGAAUC A UCCCUAUU 249 AATAGGGA GGCTAGCTACAACGA GATTCAAA 2577 1115 UCAUCCCU A UUCUGUGU 250 ACACAGAA GGCTAGCTACAACGA AGGGATGA 2578 1120 CCUAUUCU G UGUUUUAU 251 ATAAAACA GGCTAGCTACAACGA AGAATAGG 2579 1122 UAUUCUGU G UUUUAUCU 252 AGATAAAA GGCTAGCTACAACGA ACAGAATA 2580 1127 UGUGUUUU A UCUAGUCA 253 TGACTAGA GGCTAGCTACAACGA AAAACACA 2581 1132 UUUAUCUA G UCACAUAA 254 TTATGTGA GGCTAGCTACAACGA TAGATAAA 2582 1135 AUCUAGUC A CAUAAAUG 255 CATTTATG GGCTAGCTACAACGA GACTAGAT 2583					2574
1109 UUUGAAUC A UCCCUAUU 249 AATAGGGA GGCTAGCTACAACGA GATTCAAA 2577 1115 UCAUCCCU A UUCUGUGU 250 ACACAGAA GGCTAGCTACAACGA AGGGATGA 2578 1120 CCUAUUCU G UGUUUUAU 251 ATAAAACA GGCTAGCTACAACGA AGAATAGG 2579 1122 UAUUCUGU G UUUUAUCU 252 AGATAAAA GGCTAGCTACAACGA ACAGAATA 2580 1127 UGUGUUUU A UCUAGUCA 253 TGACTAGA GGCTAGCTACAACGA AAAACACA 2581 1132 UUUAUCUA G UCACAUAA 254 TTATGTGA GGCTAGCTACAACGA TAGATAAA 2582 1135 AUCUAGUC A CAUAAAUG 255 CATTTATG GGCTAGCTACAACGA GACTAGAT 2583	$\vdash$				2575
1115 UCAUCCCU A UUCUGUGU 250 ACACAGAA GGCTAGCTACAACGA AGGGATGA 2578 1120 CCUAUUCU G UGUUUUAU 251 ATAAAACA GGCTAGCTACAACGA AGAATAGG 2579 1122 UAUUCUGU G UUUUAUCU 252 AGATAAAA GGCTAGCTACAACGA ACAGAATA 2580 1127 UGUGUUUU A UCUAGUCA 253 TGACTAGA GGCTAGCTACAACGA AAAACACA 2581 1132 UUUAUCUA G UCACAUAA 254 TTATGTGA GGCTAGCTACAACGA TAGATAAA 2582 1135 AUCUAGUC A CAUAAAUG 255 CATTTATG GGCTAGCTACAACGA GACTAGAT 2583					2576
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1127 UGUGUUUU A UCUAGUCA 253 TGACTAGA GGCTAGCTACAACGA AAAACACA 2581 1132 UUUAUCUA G UCACAUAA 254 TTATGTGA GGCTAGCTACAACGA TAGATAAA 2582 1135 AUCUAGUC A CAUAAAUG 255 CATTTATG GGCTAGCTACAACGA GACTAGAT 2583					2579
1132 UUUAUCUA G UCACAUAA 254 TTATGTGA GGCTAGCTACAACGA TAGATAAA 2582 1135 AUCUAGUC A CAUAAAUG 255 CATTTATG GGCTAGCTACAACGA GACTAGAT 2583					2580
1135 AUCUAGUC A CAUAAAUG 255 CATTTATG GGCTAGCTACAACGA GACTAGAT 2583			253	TGACTAGA GGCTAGCTACAACGA AAAACACA	2581
STATES CONTINUENCE CACTAGAI 2503			254	TTATGTGA GGCTAGCTACAACGA TAGATAAA	2582
1137   CUAGUCAC A UAAAUGGA   256   TCCATTTA GGCTAGCTACAACGA GTGACTAG   2584				CATTTATG GGCTAGCTACAACGA GACTAGAT	2583
2304	1137	CUAGUCAC A UAAAUGGA	256	TCCATTTA GGCTAGCTACAACGA GTGACTAG	2584

1141	UCACAUAA A UGGAUUAA	257	TTAATCCA GGCTAGCTACAACGA TTATGTGA	2585
1145	AUAAAUGG A UUAAUUAC	258	GTAATTAA GGCTAGCTACAACGA CCATTTAT	2586
1149	AUGGAUUA A UUACUAAU	259	ATTAGTAA GGCTAGCTACAACGA TAATCCAT	2587
1152	GAUUAAUU A CUAAUUUC	260	GAAATTAG GGCTAGCTACAACGA AATTAATC	2588
1152	AAUUACUA A UUUCAGUU	261	AACTGAAA GGCTAGCTACAACGA TAGTAATT	2589
1162	UAAUUUCA G UUGAGACC	262	GGTCTCAA GGCTAGCTACAACGA TGAAATTA	2590
<del></del>	CAGUUGAG A CCUUCUAA	263	TTAGAAGG GGCTAGCTACAACGA CTCAACTG	2591
1168	ACCUUCUA A UUGGUUUU	264	AAAACCAA GGCTAGCTACAACGA TAGAAGGT	2592
1176	UCUAAUUG G UUUUUACU	265	AGTAAAAA GGCTAGCTACAACGA CAATTAGA	2593
	UGGUUUUU A CUGAAACA	266	TGTTTCAG GGCTAGCTACAACGA AAAAACCA	2594
1186	UUACUGAA A CAUUGAGG	267	CCTCAATG GGCTAGCTACAACGA TTCAGTAA	2595
1192	ACUGAAAC A UUGAGGGA	268	TCCCTCAA GGCTAGCTACAACGA GTTTCAGT	2596
	AUUGAGGG A CACAAAUU	269	AATTTGTG GGCTAGCTACAACGA CCCTCAAT	2597
1202	UGAGGGAC A CAAAUUUA	270	TAAATTTG GGCTAGCTACAACGA GTCCCTCA	2598
1204	GGACACAA A UUUAUGGG	271	CCCATAAA GGCTAGCTACAACGA TTGTGTCC	2599
1208	ACAAAUUU A UGGGCUUC	272	GAAGCCCA GGCTAGCTACAACGA AAATTTGT	2600
1212	AUUUAUGG G CUUCCUGA	273	TCAGGAAG GGCTAGCTACAACGA CCATAAAT	2601
1216	GCUUCCUG A UGAUGAUU	274	AATCATCA GGCTAGCTACAACGA CAGGAAGC	2602
1224	UCCUGAUG A UGAUUCUU	275	AAGAATCA GGCTAGCTACAACGA CATCAGGA	2603
1227	UGAUGAUG A UUCUUCUA	276	TAGAAGAA GGCTAGCTACAACGA CATCATCA	2604
1230	UCUUCUAG G CAUCAUGU	277	ACATGATG GGCTAGCTACAACGA CTAGAAGA	2605
1240	UUCUAGGC A UCAUGUCC	278	GGACATGA GGCTAGCTACAACGA GCCTAGAA	2606
1242		279	ATAGGACA GGCTAGCTACAACGA GATGCCTA	2607
1245	UAGGCAUC A UGUCCUAU	280	CTATAGGA GGCTAGCTACAACGA ATGATGCC	2608
1247	GGCAUCAU G UCCUAUAG CAUGUCCU A UAGUUUGU	281	ACAAACTA GGCTAGCTACAACGA AGGACATG	2609
1252	GUCCUAUA G UUUGUCAU	282	ATGACAAA GGCTAGCTACAACGA TATAGGAC	2610
1255	UAUAGUUU G UCAUCCCU	283	AGGGATGA GGCTAGCTACAACGA AAACTATA	2611
1259	AGUUUGUC A UCCCUGAU	284	ATCAGGGA GGCTAGCTACAACGA GACAAACT	2612
1262	CAUCCCUG A UGAAUGUA	285	TACATTCA GGCTAGCTACAACGA CAGGGATG	2613
1269	CCUGAUGA A UGUAAAGU	286	ACTITACA GGCTAGCTACAACGA TCATCAGG	2614
1273	UGAUGAAU G UAAAGUUA	287	TAACTTTA GGCTAGCTACAACGA ATTCATCA	2615
1275	AAUGUAAA G UUACACUG	288	CAGTGTAA GGCTAGCTACAACGA TTTACATT	2616
1280	GUAAAGUU A CACUGUUC	289	GAACAGTG GGCTAGCTACAACGA AACTTTAC	2617
1283	AAAGUUAC A CUGUUCAC	290	GTGAACAG GGCTAGCTACAACGA GTAACTTT	2618
1285	GUUACACU G UUCACAAA	291	TTTGTGAA GGCTAGCTACAACGA AGTGTAAC	2619
1288	CACUGUUC A CAAAGGUU	292	AACCTTTG GGCTAGCTACAACGA GAACAGTG	2620
1292	UCACAAAG G UUUUGUCU	293	AGACAAAA GGCTAGCTACAACGA CTTTGTGA	2621
1298	AAGGUUUU G UCUCCUUU	294	AAAGGAGA GGCTAGCTACAACGA AAAACCTT	2622
1303	UCCUUUCC A CUGCUAUU	295	AATAGCAG GGCTAGCTACAACGA GGAAAGGA	2623
1314	UUUCCACU G CUAUUAGU	296	ACTAATAG GGCTAGCTACAACGA AGTGGAAA	2624
1317	CCACUGCU A UUAGUCAU	297	ATGACTAA GGCTAGCTACAACGA AGCAGTGG	2625
1320	UGCUAUUA G UCAUGGUC	298	GACCATGA GGCTAGCTACAACGA TAATAGCA	2626
1324		299	AGTGACCA GGCTAGCTACAACGA GACTAATA	2627
1327		300	GAGAGTGA GGCTAGCTACAACGA CATGACTA	2628
1330		301	GGGGAGAG GGCTAGCTACAACGA GACCATGA	2629
1333		302	ATATATA GGCTAGCTACAACGA TTTGGGGA	2630
1345		303	AAATATAA GGCTAGCTACAACGA ATTTTGGG	2631
1347		304	AAAAATA GGCTAGCTACAACGA AATATTTT	2632
1350			AGAAAAAA GGCTAGCTACAACGA ATAATATT	2633
1352		305	TCTTTTA GGCTAGCTACAACGA AGAAAAAA	2634
1361	***************************************		TTITTCCA GGCTAGCTACAACGA TTTTTTCT	2635
1375		_	CCTTGTAA GGCTAGCTACAACGA TTTTTTCC	2636
1385	GGMAMAMA A UUMCAAGG			

1388	AAAAAAUU A CAAGGCAA	309	TTGCCTTG GGCTAGCTACAACGA AATTTTTT	2637
1393	AUUACAAG G CAAUGGAA	310	TTCCATTG GGCTAGCTACAACGA CTTGTAAT	2638
1396	ACAAGGCA A UGGAAACU	311	AGTTTCCA GGCTAGCTACAACGA TGCCTTGT	2639
1402	CAAUGGAA A CUAUUAUA	312	TATAATAG GGCTAGCTACAACGA TTCCATTG	2640
1405	UGGAAACU A UUAUAAGG	313	CCTTATAA GGCTAGCTACAACGA AGTTTCCA	2641
1408	AAACUAUU A UAAGGCCA	314	TGGCCTTA GGCTAGCTACAACGA AATAGTTT	2642
1413	AUUAUAAG G CCAUUUCC	315	GGAAATGG GGCTAGCTACAACGA CTTATAAT	2643
1416	AUAAGGCC A UUUCCUUU	316	AAAGGAAA GGCTAGCTACAACGA GGCCTTAT	2644
1427	UCCUUUUC A CAUUAGAU	317	ATCTAATG GGCTAGCTACAACGA GAAAAGGA	2645
1429	CUUUUCAC A UUAGAUAA	318	TTATCTAA GGCTAGCTACAACGA GTGAAAAG	2646
1434	CACAUUAG A UAAAUUAC	319	GTAATTTA GGCTAGCTACAACGA CTAATGTG	2647
1438	UUAGAUAA A UUACUAUA	320	TATAGTAA GGCTAGCTACAACGA TTATCTAA	2648
1441	GAUAAAUU A CUAUAAAG	321	CTTTATAG GGCTAGCTACAACGA AATTTATC	2649
1444	AAAUUACU A UAAAGACU	322	AGTCTTTA GGCTAGCTACAACGA AGTAATTT	2650
1450	CUAUAAAG A CUCCUAAU	323	ATTAGGAG GGCTAGCTACAACGA CTTTATAG	2651
. 1457	GACUCCUA A UAGCUUUU	324	AAAAGCTA GGCTAGCTACAACGA TAGGAGTC	2652
1460	UCCUAAUA G CUUUUUCC	325	GGAAAAAG GGCTAGCTACAACGA TATTAGGA	2653
1470	UUUUUCCU G UUAAGGCA	326	TGCCTTAA GGCTAGCTACAACGA AGGAAAAA	2654
1476	CUGUUAAG G CAGACCCA	327	TGGGTCTG GGCTAGCTACAACGA CTTAACAG	2655
1480	UAAGGCAG A CCCAGUAU	328	ATACTGGG GGCTAGCTACAACGA CTGCCTTA	2656
1485	CAGACCCA G UAUGAAUG	329	CATTCATA GGCTAGCTACAACGA TGGGTCTG	2657
1487	GACCCAGU A UGAAUGGG	330	CCCATTCA GGCTAGCTACAACGA ACTGGGTC	2658
1491	CAGUAUGA A UGGGAUUA	331	TAATCCCA GGCTAGCTACAACGA TCATACTG	2659
1496	UGAAUGGG A UUAUUAUA	332	TATAATAA GGCTAGCTACAACGA CCCATTCA	2660
1499	AUGGGAUU A UUAUAGCA	333	TGCTATAA GGCTAGCTACAACGA AATCCCAT	2661
1502	GGAUUAUU A UAGCAACC	334	GGTTGCTA GGCTAGCTACAACGA AATAATCC	2662
1505	UUAUUAUA G CAACCAUU	335	AATGGTTG GGCTAGCTACAACGA TATAATAA	2663
1508	UUAUAGCA A CCAUUUUG	336	CAAAATGG GGCTAGCTACAACGA TGCTATAA	2664
1511	UAGCAACC A UUUUGGGG	337	CCCCAAAA GGCTAGCTACAACGA GGTTGCTA	2665
1519	AUUUUGGG G CUAUAUUU	338	AAATATAG GGCTAGCTACAACGA CCCAAAAT	2666
1522	UUGGGGCU A UAUUUACA	339	TGTAAATA GGCTAGCTACAACGA AGCCCCAA	2667
1524	GGGGCUAU A UUUACAUG	340	CATGTAAA GGCTAGCTACAACGA ATAGCCCC	2668
1528	CUAUAUUU A CAUGCUAC	341	GTAGCATG GGCTAGCTACAACGA AAATATAG	2669
1530	AUAUUUAC A UGCUACUA	342	TAGTAGCA GGCTAGCTACAACGA GTAAATAT	2670
1532	AUUUACAU G CUACUAAA	343	TTTAGTAG GGCTAGCTACAACGA ATGTAAAT	2671
1535	UACAUGCU A CUAAAUUU	344	AAATTTAG GGCTAGCTACAACGA AGCATGTA	2672
1540	GCUACUAA A UUUUUUAUA	345	TATAAAAA GGCTAGCTACAACGA TTAGTAGC	2673
1546	UUAAUAAU A UUUUUAAA	346	AATTATTA GGCTAGCTACAACGA AAAAATTT	2674
1549	UUUUUAUA A UAAUUGAA	347	TTCAATTA GGCTAGCTACAACGA TATAAAAA	2675
1552	UUAUAAUA A UUGAAAAG	348	CTTTTCAA GGCTAGCTACAACGA TATTATAA	2676
1561	UUGAAAAG A UUUUAACA	349	TGTTAAAA GGCTAGCTACAACGA CTTTTCAA	2677
1567	AGAUUUUA A CAAGUAUA	350	TATACTTG GGCTAGCTACAACGA TAAAATCT	2678
1571	UUUAACAA G UAUAAAAA	351	TTTTTATA GGCTAGCTACAACGA TTGTTAAA	2679
1573	UAACAAGU A UAAAAAA	352	TTTTTTA GGCTAGCTACAACGA ACTTGTTA	2680
1581	AUAAAAA A UUCUCAUA	353	TATGAGAA GGCTAGCTACAACGA TTTTTTAT	2681
1587	AAAUUCUC A UAGGAAUU	354	AATTCCTA GGCTAGCTACAACGA GAGAATTT	2682
1593	UCAUAGGA A UUAAAUGU	355	ACATTTAA GGCTAGCTACAACGA TCCTATGA	2683
1598	GGAAUUAA A UGUAGUCU	356	AGACTACA GGCTAGCTACAACGA TTAATTCC	2684
1600	AAUUAAAU G UAGUCUCC	357	GGAGACTA GGCTAGCTACAACGA ATTTAATT	2685
1603	UAAAUGUA G UCUCCCUG	358	CAGGGAGA GGCTAGCTACAACGA TACATTTA	2686
1611	GUCUCCCU G UGUCAGAC	359	GTCTGACA GGCTAGCTACAACGA AGGGAGAC	2687
1613	CUCCCUGU G UCAGACUG	360	CAGTCTGA GGCTAGCTACAACGA ACAGGGAG	2688
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1618	UGUGUCAG A CUGCUCUU	361	AAGAGCAG GGCTAGCTACAACGA CTGACACA	2689
1621	GUCAGACU G CUCUUUCA	362	TGAAAGAG GGCTAGCTACAACGA AGTCTGAC	2690
1629	GCUCUUUC A UAGUAUAA	363	TTATACTA GGCTAGCTACAACGA GAAAGAGC	2691
1632	CUUUCAUA G UAUAACUU	364	AAGTTATA GGCTAGCTACAACGA TATGAAAG	2692
1634	UUCAUAGU A UAACUUUA	365	TAAAGTTA GGCTAGCTACAACGA ACTATGAA	2693
1637	AUAGUAUA A CUUUAAAU	366	ATTTAAAG GGCTAGCTACAACGA TATACTAT	2694
	AACUUUAA A UCUUUUCU	367	AGAAAAGA GGCTAGCTACAACGA TTAAAGTT	2695
1644	UUUCUUCA A CUUGAGUC	368	GACTCAAG GGCTAGCTACAACGA TGAAGAAA	2696
1656	CAACUUGA G UCUUUGAA	369	TTCAAAGA GGCTAGCTACAACGA TCAAGTTG	2697
1662	CUUUGAAG A UAGUUUUA	370	TAAAACTA GGCTAGCTACAACGA CTTCAAAG	2698
1672	UGAAGAUA G UUUUAAUU	371	AATTAAAA GGCTAGCTACAACGA TATCTTCA	2699
1675	UAGUUUUA A UUCUGCUU	372	AAGCAGAA GGCTAGCTACAACGA TAAAACTA	2700
1681	UUAAUUCU G CUUGUGAC	373	GTCACAAG GGCTAGCTACAACGA AGAATTAA	2701
1686	UUCUGCUU G UGACAUUA	374	TAATGTCA GGCTAGCTACAACGA AAGCAGAA	2702
1690	UGCUUGUG A CAUUAAAA	375	TTTTAATG GGCTAGCTACAACGA CACAAGCA	2703
1693		376	TCTTTTAA GGCTAGCTACAACGA GTCACAAG	2704
1695	CUUGUGAC A UUAAAAGA	377	CCAAATAA GGCTAGCTACAACGA CTTTTAAT	2705
1703	AUUAAAAG A UUAUUUGG	378	GGCCCAAA GGCTAGCTACAACGA AATCTTTT	2706
1706	AAAAGAUU A UUUGGGCC	379	ATAACTGG GGCTAGCTACAACGA CCAAATAA	2707
1712	UUAUUUGG G CCAGUUAU	380	AGCTATAA GGCTAGCTACAACGA TGGCCCAA	2708
1716	UUGGGCCA G UUAUAGCU		ATAAGCTA GGCTAGCTACAACGA AACTGGCC	2709
1719	GGCCAGUU A UAGCUUAU	381	CTAATAAG GGCTAGCTACAACGA TATAACTG	2710
1722	CAGUUAUA G CUUAUUAG	382	ACACCTAA GGCTAGCTACAACGA AAGCTATA	2711
1726	UAUAGCUU A UUAGGUGU	383	CTTCAACA GGCTAGCTACAACGA CTAATAAG	2712
1731	CUUAUUAG G UGUUGAAG	384	CTCTTCAA GGCTAGCTACAACGA ACCTAATA	2713
1733	UAUUAGGU G UUGAAGAG	385	AACCTTGG GGCTAGCTACAACGA CTCTTCAA	2714
1742	UUGAAGAG A CCAAGGUU	386	GCTTGCAA GGCTAGCTACAACGA CTTGGTCT	2715
1748	AGACCAAG G UUGCAAGC	387	CTGGCTTG GGCTAGCTACAACGA AACCTTGG	2716
1751	CCAAGGUU G CAAGCCAG	388 389	GGGCCTGG GGCTAGCTACAACGA TTGCAACC	2717
1755	GGUUGCAA G CCAGGCCC	390	ACACAGGG GGCTAGCTACAACGA CTGGCTTG	2718
1760	CAAGCCAG G CCCUGUGU	391	GGTTCACA GGCTAGCTACAACGA AGGGCCTG	2719
1765	CAGGCCCU G UGUGAACC	392	AAGGTTCA GGCTAGCTACAACGA ACAGGGCC	2720
1767	GGCCCUGU G UGAACCUU	393	GCTCAAGG GGCTAGCTACAACGA TCACACAG	2721
1771	CUGUGUGA A CCUUGAGC	394	TATGAAAG GGCTAGCTACAACGA TCAAGGTT	2722
1778	AACCUUGA G CUUUCAUA	395	ACTOTOTA GGCTAGCTACAACGA GAAAGCTC	2723
1784	GAGCUUUC A UAGAGAGU	396	CTGTGAAA GGCTAGCTACAACGA TCTCTATG	2724
1791	CAUAGAGA G UUUCACAG	397	CCATGCTG GGCTAGCTACAACGA GAAACTCT	2725
1796		398	AGTCCATG GGCTAGCTACAACGA TGTGAAAC	2726
1799		399	ACAGTCCA GGCTAGCTACAACGA GCTGTGAA	2727
1801		400	GCACACAG GGCTAGCTACAACGA CCATGCTG	2728
1805		401	GGGGCACA GGCTAGCTACAACGA AGTCCATG	2729
1808		402	GTGGGGCA GGCTAGCTACAACGA ACAGTCCA	2730
1810		402	CCGTGGGG GGCTAGCTACAACGA ACACAGTC	2731
1812		404	GATGACCG GGCTAGCTACAACGA GGGGCACA	2732
1817		404	TCGGATGA GGCTAGCTACAACGA CGTGGGGC	2733
1820		406	CACTCGGA GGCTAGCTACAACGA GACCGTGG	2734
1823		407	TACAACCA GGCTAGCTACAACGA TCGGATGA	2735
1829		407	TCGTACAA GGCTAGCTACAACGA CACTCGGA	2736
1832		409	GCATCGTA GGCTAGCTACAACGA AACCACTC	2737
1835			ATGCATCG GGCTAGCTACAACGA ACAACCAC	2738
1837			CCAATGCA GGCTAGCTACAACGA CGTACAAC	2739
1840			AACCAATG GGCTAGCTACAACGA ATCGTACA	2740
1842	UGUACGAU G CAUUGGUU	1 414	Anconito doctitoditation	

1848		<del></del>		· · · · · · · · · · · · · · · · · · ·	<del>,</del>
1852   AUUGGUUA G UCAAAAAU   415   ATTITIGA GGCTAGCTACAACGA TAACCAAT   2743   1859   AGUCAAAA A UGGGGGGG 416   CCTCCCCCA GGCTAGCTACAACGA TTTITGACT   2744   1869   GGGGAGGG A CUAGGGCA   417   TGCCCTAG GGCTAGCTACAACGA CCTCCCC   2745   1875   GGACUAGG C CAGUUGG   418   CCAAACTG GGCTAGCTACAACGA CCTCCCC   2745   1876   GGACUAGG C CAGUUGG   419   TATCACAA GGCTAGCTACAACGA CCTCCCC   2745   1878   CUAGGCCA   GUUGGAUA   420   TTGAGCTA GGCTAGCTACAACGA TGCCCTAG   2747   1884   CAGUUUGG A UAGCUCAA   421   TTGTTGAG GGCTAGCTACAACGA TATCCCAAA   2749   1887   UUUGGAUA   422   TTGTTGAG GGCTAGCTACAACGA TATCCCAAA   2749   1892   AUAGCUCA A CAAACUCC   422   GTATCTTG GGCTAGCTACAACGA TATCCCAAA   2779   UCAACCAAC A UACAUCCC   422   GTATCTTG GGCTAGCTACAACGA TAGCCTAT   2750   1897   UCAACCAAC A UCCACCC   422   GTATCTTG GGCTAGCTACAACGA TAGCCTAT   2751   1899   ACAABGUA   AUCCACCC   425   GAGTGAGA GGCTAGCTACAACGA CTTGTTGT   2751   1992   ACAABGUA   UCCACCUC   425   GAGTGAGA GGCTAGCTACAACGA TGTATCTT   2752   1992   ACAABGUA   UCCACCUC   425   GAGTGAGA GGCTAGCTACAACGA TGTATCTT   2753   1992   ACAAUCCA   UCCUGUGG   426   CCACAGGG GGCTAGCTACAACGA AGGATTAC   2754   1912   CUCACCUC   GUGGIGGUC   428   CAGGACCA   GGCTAGCTACAACGA AGGATTAC   2755   1915   ACUCUGUG   UCCUGCUG   428   CAGGACCA   GGCTAGCTACAACGA CACAGAGT   2755   1915   ACUCUGUG   UCCUGCUG   428   CAGGACCA   GGCTAGCTACAACGA CACACAGG   2757   1923   GUGGUCU   CUGCUG   429   CAGCAGGA   GGCTAGCTACAACGA CACACAGG   2757   1923   GUGGUCU   CUGCUG   429   CAGCAGGA   GGCTAGCTACAACGA CACACAG   2757   1924   UCCUGCUG   ACAAUCCA   431   TTGTTTG   GGCTAGCTACAACGA CACCACGA   2758   1927   UCCUGCUG   ACAAUCCA   431   TTGTTTG   GGCTAGCTACAACGA CACCACGA   2758   1927   UCCUGCUG   ACAAUCCA   431   TTGTTTG   GGCTAGCTACAACGA CACCACGA   2758   1927   UCCUGCUG   ACAAUCCA   431   TTGTTTG   GGCTAGCTACAACGA CACCACGA   2759   1928   UUCCUGACA   UUCCUUA   433   AAGCAAG   GCTAGCTACAACGA CACCACGA   2759   1929   UUCCUGUA   AUAGCCA   431   AGACATG   GGCTAGCTACAACGA CACCACGA   2760   1920   UUCCUGACA   UUCCUUA	1844	UACGAUGC A UUGGUUAG	413	CTAACCAA GGCTAGCTACAACGA GCATCGTA	2741
1859   AGUCAMA A UGGGGAGG	1848	AUGCAUUG G UUAGUCAA	414	TTGACTAA GGCTAGCTACAACGA CAATGCAT	2742
1869	1852	AUUGGUUA G UCAAAAAU	415	ATTTTGA GGCTAGCTACAACGA TAACCAAT	2743
1875   GACUAGG G CAGUUUGG   418   CCAAACTG GGCTAGCTACAAGGA CCTAGTCC   2746   1878   CUAGGGG G UUUGGAUA   419   TATCCAAA GGCTAGCTACAAGGA TGCCCTAG   2747   1884   CAGUUUGG A UAGCUCAA   420   TTAGCCTAA GGCTAGCTACAAGGA CCAAACTG   2748   1887   UUUGGAUA G CUCAACAA   421   TTGTTGAG GGCTAGCTACAAGGA CCAAACTG   2748   1889   UAGACAGA A CAAACUCA   422   GTATCTTG GGCTAGCTACAAGGA TTACCAAA   2749   1899   AUACAGAG A UACAAUCU   423   AGATTGTA GGCTAGCTACAAGGA CTAGTCTAC   2751   1899   AACAAGAA A UACAAUCU   424   TGAGATTA GGCTAGCTACAAGGA CTTGTTGT   2752   1902   AAGAUACA A UCUCACUC   425   GAGTTGAGA GGCTAGCTACAAGGA CTTGTTGT   2753   1907   ACAAUCUC A CUCUGUGG   426   CCACAGAG GGCTAGCTACAAGGA ATCTTGTT   2753   1907   ACAAUCUC A CUCUGUGG   426   CCACAGAG GGCTAGCTACAAGGA AGAGTGAG   2755   1912   CUCACUCU G UGGUGCUU   428   CAGGACCA GGCTAGCTACAAGGA AGAGTGAG   2755   1915   ACUCUGUG G UUGUCCUU   428   CAGGACCA GGCTAGCTACAAGGA AGAGTGAG   2755   1918   CUCUGUGG G UCCUGCUU   428   CAGGACCA GGCTAGCTACAAGGA AGAGCAC   2756   1923   GUGUGCUU   GUGACAAA   430   TTGTCAG GGCTAGCTACAACGA AGAGCCAC   2757   1923   GUGUGCU G CUGACAAA   431   TTGATTTG GGCTAGCTACAACGA AGAGCCAC   2758   1931   GCUGACAA A UCAAGAGC   432   GCTCTTGA GGCTAGCTACAACGA AGACCACC   2759   1931   GCUGACAA A UCAAGAGC   432   GCTCTTGA GGCTAGCTACAACGA AGACCACC   2759   1931   GCUGACAA A UCAAGAGC   432   GCTCTTGA GGCTAGCTACAACGA CTGTCACT   2761   1943   AGACAGAG G CAUCACCU   433   AGACACCA GGCTAGCTACAACGA CTGTCACT   2761   1943   AGACAGAG G CAUCACCU   434   AAAAGCAA GGCTAGCTACAACGA CTGTCACT   2761   1943   AGACAGAG G CUUUUUU   434   AAAAGCAA GGCTAGCTACAACGA CTTTCTAC   2762   1943   AGACAACA G CUUUUUU   435   AACAAAGAG GGCTAGCTACAACGA ATTGTCATC   2763   1949   UUGUUUAA A 140   ATTGAAGA GGCTAGCTACAACGA ATTGTCTAC   2764   1949   UUGUUUAA A 140   ATTGAAGA GGCTAGCTACAACGA TTTTCTAA   2765   1949   UUGUUUAA A UUUUUUAA A 140   ATTGAAGA GGCTAGCTACAACGA TTTTCTAA   2765   1949   UUUUAAAA A UUACUUUU   438   AAAAGAGA GGCTAGCTACAACGA TTTTCTAA   2767   1949   UUUUAAAA A UUACUUUU   438   AAAA	1859	AGUCAAAA A UGGGGAGG	416	CCTCCCCA GGCTAGCTACAACGA TTTTGACT	2744
1878	1869	GGGGAGGG A CUAGGGCA	417	TGCCCTAG GGCTAGCTACAACGA CCCTCCCC	2745
1884	1875	GGACUAGG G CAGUUUGG	418	CCAAACTG GGCTAGCTACAACGA CCTAGTCC	2746
1897   UUUGGAUA G CUCAACAA   421   TTGTTGAG GGCTAGCTACAACGA TATCCAAA   2749   1892   AUAGCUCA A CAAGAUAC   422   GTATCTTG GGCTAGCTAACGAA GAACCTAT   2750   1897   UACAACGAG A UACAAUCUA   423   AGATTGTA GGCTAGCTAACGA CTTGTTTGA   2751   1899   AACAAGAG A UACAAUCUA   424   TGAGATTGT GGCTAGCTAACGA ATCTTGTT   2752   1902   AAGAAGAA A UCUCACUC   425   GAGTGAGA GGCTAGCTAACGA ATCTTGTT   2753   1907   ACAAUCUA   CUCUGUGG   426   CCACGAGA GGCTAGCTAACGA GAGTTGTT   2754   1912   CUCACUCU   GUGUGCUG   427   GACCACCA GGCTAGCTACAACGA AGATTGTT   2754   1912   CUCACUCU   GUGUCCUG   428   CAGGACCA GGCTAGCTACAACGA CACAGAGT   2755   1915   ACUCUGUG   GUGUCCUG   429   CAGCAGGA GGCTAGCTACAACGA CACAGAGT   2756   1918   CUGUGUG   GUGUCCUG   429   CAGCAGGA GGCTAGCTACAACGA CACAGAG   2757   1923   GUGUCCU   GUGACAAA   430   TTGGTCAG GGCTAGCTACAACGA CACAGAG   2757   1923   GUGUCCU   GUGACAAA   431   TTGATTG GGCTAGCTACAACGA CACAGAG   2759   1931   GCUGACAA   AUCAAGGAC   432   GCTCTTGA GGCTAGCTACAACGA CACAGAG   2759   1931   GCUGACAA   AUCAAGGAC   433   AACAATG GGCTAGCTACAACGA CACAGAG   2759   1934   AAUCAAGAC   GUGUUUU   434   AAAAGCAA GGCTAGCTACAACGA CACAGAG   2760   1938   AAUCAAGAC   GUGUUUU   434   AAAAGCAA GGCTAGCTACAACGA CACAGAG   2760   1938   AAUCAAGAC   CUUUUGUU   435   AACAAAAG GGCTAGCTACAACGA CACAGAG   2761   1949   UUGCUUUU   GUUUUUUAA   436   TTAAGAAA GGCTAGCTACAACGA ATGCTCT   2763   1949   UUGCUUUU   GUUUUUUAA   436   TTAAGAAA GGCTAGCTACAACGA TTGTTGAT   2761   1940   UUAAAAAA A UUCUUUUAA   437   AAGATTAG GGCTAGCTACAACGA TTTGTTTC   2766   GAAAACAA A CUUUUAAA   440   TTAAAAGA GGCTAGCTACAACGA TTTTTTAAA   2767   1949   UUGCUUU   GUUUUUAA   440   ATTAAAAGCAA GGCTAGCTACAACGA TTTTTTTTC   2766   GAAAACAA A CUUUUAAA   440   TTAAAAGAA GGCTAGCTACAACGA TTTTTTTTAA   2767   1949   UUGUUUAA A UUUUAAAA   440   TTAAAAGAA GGCTAGCTACAACGA TTTTTTTAA   2767   1949   UUGUUUAA A UUUUAAAA   440   TTAAAAGAA GGCTAGCTACAACGA TTTTTAAAA   2767   1949   UUGUUUAAA A UUUUUAAAA   440   TTAAAAGAA GGCTAGCTACAACGA TTTTTAAAA   2769   1949   UUGUUUAAAA A UUUUAAA	1878	CUAGGCA G UUUGGAUA	419	TATCCAAA GGCTAGCTACAACGA TGCCCTAG	2747
1892   AUAGCUCA A CARGAUAC   422   GTATCTTG GGCTAGCTACCACGA TGAGCTAT   2750   1897   UCAACCAG A UACAAUCU   423   AGATTGTT GGCTAGCTACCACGA CTTGTTGA   2751   1899   ACAAGAGA A CACUCUC   425   GAGTGAG GGCTAGCTACCACGA ATCTTGTT   2751   1902   AAGAUACA A UCUCACUC   425   GAGTGAG GGCTAGCTACCACGA ATCTTGTT   2753   1907   ACAAUGUUC A CUCUGUGG   426   CCACGAGA GGCTAGCTACCACGA TGTATCTT   2753   1910   ACAAUGUUC A CUCUGUGG   426   CCACGAGA GGCTAGCTACCACGA TGTATCTT   2753   1911   ACUCUGUG G UGGUGCUC   427   GACCACCA GGCTAGCTACCACGA ACGATTGG   2756   1912   CUCACUCU G UGGUGGUC   428   CAGGACCA GGCTAGCTACCACGA CACAGAGT   2756   1918   CUGUGGGG G UCCUGCUG   429   CAGCAGCA GGCTAGCTACCACGA CACACGAG   2757   1923   GUGGUCU G CUGACAAA   430   TTGTTGTAG GGCTAGCTACACGA AGCACCAC   2758   1927   UCCUGCUG A CAAAUCAA   431   TTGATTTG GGCTAGCTACACGA AGCACCAC   2759   1931   GCUGACAAA   UCAAGAGC   432   GCTCTTGA GGCTAGCTACACGA CACAGAGA   2759   1933   GAUCAGAG C AUUACUUU   434   AAAAGCAA GGCTAGCTACAACGA CTGTAGTT   2761   1940   UUCAACAGC C ACUUGCUU   435   AACCAAAGA GGCTAGCTACAACGA CTCTTGA   2762   1943   AGAGCAU G CUUUUUUU   434   AAAAGCAA GGCTAGCTACAACGA CTCTTGA   2762   1944   UUGCUUUA   UUUCUUAA   436   TTAGGAAA GGCTAGCTACAACGA ATTCTTT   2763   1945   UUGCUUAAA A UAACUUUU   437   AGAGTTTG GGCTAGCTACAACGA ATTCTTT   2765   1966   GAAAACAA A CUACUUUU   438   AAAAGAGA GGCTAGCTACAACGA ATTCTTT   2766   1980   UUUUAAAA A UAUCUUUU   439   AAAAGTAA GGCTAGCTACAACGA TTTCTTAA   2767   1980   UUUUAAAA A UAUCUUUU   439   AAAAGTAA GGCTAGCTACAACGA TTTTTTAA   2768   1991   ACUUUUAAA A UAUUAACU   441   AGTTAATA GGCTAGCTACAACGA TTTTTTAA   2769   1992   AAAUAUUA A UUUAACU   441   AGTTAATA GGCTAGCTACAACGA TTTTAAAA   2767   1993   UUUUAAAA A UACUUUU   439   AAAAGTAA GGCTAGCTACAACGA TTTTTAAA   2767   1993   UUUUAAAA A UAUAACU   441   AGTTAATA GGCTAGCTACAACGA TTTTAAAA   2767   1993   UUUUAAAA A UAUAACU   441   AGTTAATA GGCTAGCTACAACGA TTTTAAAA   2769   1994   ACUUUUAA A UUUAACU   441   AGTTAATA GGCTAGCTACAACGA TTAATATT   2771   1995   ACUUUAAAA A UUCACAA	1884	CAGUUUGG A UAGCUCAA	420	TTGAGCTA GGCTAGCTACAACGA CCAAACTG	2748
1897	1887	UUUGGAUA G CUCAACAA	421	TTGTTGAG GGCTAGCTACAACGA TATCCAAA	2749
1899	1892	AUAGCUCA A CAAGAUAC	422	GTATCTTG GGCTAGCTACAACGA TGAGCTAT	2750
1902   AAGAUACA A UCUCACUC   425   GAGTGAGA GGCTAGCTACAACGA TGTATCTT   2753     1907   ACABUCUC A CUCUGUGG   426   CCACAGAG GGCTAGCTACAACGA AGAGTGTG   2754     1912   CUCCACUCU G UGGUGGUC   427   GACCACCA GGCTAGCTACAACGA AGAGTGAG   2755     1915   ACUCUGUG G UGGUGGUC   429   CAGGAGGA GGCTAGCTACAACGA AGAGTGAG   2756     1918   CUGUGGUG G UCCUGCUG   429   CAGGAGGA GGCTAGCTACAACGA CACCACAG   2757     1923   GUGGUCCU G CUGACAAA   430   TTTGTTCAG GGCTAGCTACAACGA AGACCACC   2757     1924   UCCUGCUG A CAAAUCAA   431   TTGATTTG GGCTAGCTACAACGA AGGACCAC   2758     1931   GCUGACAA A UCAAGAGC   432   GCTCTTGA GGCTAGCTACAACGA AGGACCAC   2759     1931   GCUGACAA A UCAAGAGC   432   GCTCTTGA GGCTAGCTACAACGA CACCACGA   2759     1931   GCUGACAA A UCAAGAGC   432   GCTCTTGA GGCTAGCTACAACGA CACCACGA   2759     1932   UCCUGCUG A CAAAUCAA   431   TTGATTTG GGCTAGCTACAACGA CACCACGA   2759     1933   AAUCAAGAG C AUUGCUUU   434   AAAAGCAA GGCTAGCTACAACGA TTGTCATC   2760     1944   UCAAGAGG C AUUGCUUU   435   AACAAAAG GGCTAGCTACAACGA ATTGTCTT   2761     1949   UUGCUUUU G UUCUUAA   436   TTAAGAAA GGCTAGCTACAACGA ATGCTCT   2763     1949   UUGCUUUU G UUCUUAA   436   TTAAGAAA GGCTAGCTACAACGA ATGCTTC   2765     1960   UUUAAGAAA A CAACUCU   437   AAGAGTAA GGCTAGCTACAACGA TTGTTTC   2766     1960   UUUUAAAA A UUACUUUU   438   AAAAAGAA GGCTAGCTACAACGA TTGTTTA   2765     1960   UUUUAAAA A UUAUCUUU   439   AAAAGTAA GGCTAGCTACAACGA TTTTTAAA   2767     1981   UUUUAAAA A UUAUCUUU   431   AAAAGTAA GGCTAGCTACAACGA TTTTAAAA   2767     1993   UUUUAAAA UUUUUAAA   440   TTTAAAAG GGCTAGCTACAACGA TTTAAAAA   2770     1993   UUUUAAAA UUUUUAAA   441   AGTTAATA GGCTAGCTACAACGA TTTAAAAA   2770     1993   UUUUAAAA UUUUUGAGG   445   CTCCAAAA GGCTAGCTACAACGA TTTAAAAA   2770     1993   UUUUAAAA UUUUUGAGG   446   CCCCAAAA GGCTAGCTACAACGA TTTAAAAA   2771     2005   ACUCAAAA G UUGAGAU   444   ATCTCAA GGCTAGCTACAACGA TTAAAAATT   2771     2019   AUUUUGAG G UGGCAAGA   449   TCTGCACA GGCTAGCTACAACGA TTAAAATT   2771     2029   GGUGGUGU G UGGCAAGA   449   TCTGCACA GGCTAGCTAC	1897	UCAACAAG A UACAAUCU	423	AGATTGTA GGCTAGCTACAACGA CTTGTTGA	2751
1907   ACANUCUC A CUCUUUGG   426   CCACAGAG GGCTAGCTACAACGA GAGATTGT   2754     1912   CUCACUCUC G UGGUGGUC   427   GACCACCA GGCTAGCTACAACGA AGAGTGAG   2755     1915   ACUCUGUG G UGGUCCUG   428   CAGGACCA GGCTAGCTACAACGA CACAGAGT   2756     1918   CUGUGGUG G UCCUCCUG   429   CAGCAGGA GGCTAGCTACAACGA CACCACAC   2757     1923   GUGGUCCU G CUCACAAA   430   TTGTCAG GGCTAGCTACAACGA CACCACAC   2758     1927   UCCUGCUG A CAAAUCAA   431   TTGATTTG GGCTAGCTACAACGA CACCACAC   2758     1931   GCUGACAA A UCAAGAGC   432   GCTCTTGA GGCTAGCTACAACGA CACCACAC   2758     1931   GCUGACAA A UCACAGAGC   432   GCTCTTGA GGCTAGCTACAACGA TTGTCAGC   2760     1938   AAUCAAGA C CAUUGCUU   433   AAGCAATG GGCTAGCTACAACGA TTGTCAGC   2761     1940   UCAAGAGC A UUGCUUU   434   AAAAGCAA GGCTAGCTACAACGA TTGTCTCT   2761     1941   UUGCUUU G UUUCUUAA   436   TTAAGAAA GGCTAGCTACAACGA CACCACACACA   2764     1962   UUAAGAAA A CUACUUUUU   438   AAAAGAA GGCTAGCTACAACGA AATGCCT   2765     1966   GAAAACAA A CUCUUUUU   438   AAAAGAA GGCTAGCTACAACGA AAAACCAA   2764     1966   GAAAACAA A CUCUUUUU   438   AAAAGAA GGCTAGCTACAACGA TTGTTTA   2765     1980   UUUUAAAA A UUACUUUU   439   AAAAGTAA GGCTAGCTACAACGA TTGTTTA   2767     1981   UUUUAAAA A UUACUUUU   439   AAAAGTAA GGCTAGCTACAACGA TTGTTTA   2767     1983   UUUUAAAA A UUACUUUU   439   AAAAGTAA GGCTAGCTACAACGA TTTTTAAA   2767     1991   ACUUUUAA A UUAACUC   441   AGTTAATA GGCTAGCTACAACGA TTTTAAAA   2767     1993   UUUUAAAU A UUAACUC   441   AGTTAATA GGCTAGCTACAACGA TTTAAAA   2770     1997   AAAUAUUA A UUAACUC   442   TGAGTTAA GGCTAGCTACAACGA TTAAAAG   2770     1997   AAAUAUUA A UUAACUC   444   AGTTCCAA GGCTAGCTACAACGA TTAAAAG   2771     1997   AAAUAUUA A UUAACUC   444   AGTTCCAA GGCTAGCTACAACGA TTAAAAG   2771     1997   AAAUAUUA A UUAACUC   444   AGTTCCAA GGCTAGCTACAACGA TTAAAAG   2772     1998   UUUUAAAU A UUAACUC   446   AGTTCCAA GGCTAGCTACAACGA CTCAACCT   2773     2019   AUUUUAAA A UUAACUC   447   GCCAACA GGCTAGCTACAACGA TTAAAAG   2772     2029   GGGUGGUG G UGCCAAGA   448   TTCTTGAG GGCTAGCTACAACGA CTC	1899	AACAAGAU A CAAUCUCA	424	TGAGATTG GGCTAGCTACAACGA ATCTTGTT	2752
1912   CUCACUCU G UGGUGGUC   427   GACCACCA GGCTAGCTACAACGA AGAGTGA   2755   1915   ACUCUGUG G UGGUCCUG   428   CAGGAGCA GGCTAGCTACAACGA CACAGAGT   2756   1918   CUGUGGUG G UCCUGCUG   429   CAGCAGGA GGCTAGCTACAACGA CACCACAG   2757   1923   GUGGUCCU G CUGACAAA   430   TTTGTCAG GGCTAGCTACAACGA CACCACAG   2758   1927   UCCUGCUG A CAAAACCAA   431   TTGATTAG GGCTAGCTACAACGA CAGCAGGA   2759   1931   GCUGACAA   UCAAGAGC   432   GCTCTTGA GGCTAGCTACAACGA CAGCAGGA   2759   1931   GCUGACAA   UCAAGAGC   432   GCTCTTGA GGCTAGCTACAACGA TGTCACAG   2760   1938   AAUCAAGAG C CAUUGCUU   433   AAGCAATG GGCTAGCTACAACGA TGTCACAG   2761   1940   UCAAGAGC A UUGCUUU   434   AAAAGCAA GGCTAGCTACAACGA TCTTGAT   2762   1943   AGAGCAU G CUUUUUUU   435   AACAAAAG GGCTAGCTACAACGA ATGCTCTTGA   2762   1949   UUGCUUUA   436   TAAGAAA GGCTAGCTACAACGA ATGCTCT   2763   1949   UUGCUUUA   436   AAAAAGCAA GGCTAGCTACAACGA ATGCTCTAAA   2764   1962   UUAAAAAA A CAAACUCU   437   AGAGTTTG GGCTAACCAACGA ATTCTTAA   2765   1966   GAAAACAA A CUUUUUUU   438   AAAAAGAA GGCTAGCTACAACGA TTTTTATC   2766   1980   UUUUAAAA   UUUUAAAA   440   TTTAAAAG GGCTAGCTACAACGA ATTTTATA   2766   1980   UUUUAAAA   UUUUAAAA   440   TTTAAAAG GGCTAGCTACAACGA ATTTTATA   2768   1991   ACUUUUAA A UAUUAACU   441   AGTTAATA GGCTAGCTACAACGA ATTTTATA   2769   1993   UUUUAAAU   UUAACUCA   442   TGAGTTAA GGCTAGCTACAACGA ATTTTATA   2770   1997   AAAUAUUA   CUCAAAAG   443   CTTTTGAG GGCTAGCTACAACGA ATTTTATA   2770   1997   AAAUAUA   CUCAAAAG   443   CTTTTGAG GGCTAGCTACAACGA ATTTTATA   2770   1997   AAUAUUA   CUCAAAAG   444   CTTTAAAG GGCTAGCTACAACGA ATTTTAAA   2770   1997   AAGUUGAG   UUAGAGAU   444   AATCTCAA GGCTAGCTACAACGA TTTTAAAA   2770   1997   AAGUUGAG   UUAGAGAU   446   CACCACCA GGCTAGCTACAACGA TTTTAAAA   2770   1997   AAGUUGAG   UUAGAGAU   446   CACCACCA GGCTAGCTACAACGA TTTTAAGT   2773   1997   AAGUUGAG   UUAGAGAG   447   GCACACCA GGCTAGCTACAACGA TTTTAAGT   2773   1997   AAGUUGAA   UUUUGAGA   448   TTGCTCAA GGCTAGCTACAACGA CACCACCA   2776   1997   1997   1997   1997   1997   1997	1902	AAGAUACA A UCUCACUC	425	GAGTGAGA GGCTAGCTACAACGA TGTATCTT	2753
1915	1907	ACAAUCUC A CUCUGUGG	426	CCACAGAG GGCTAGCTACAACGA GAGATTGT	2754
1918	1912	CUCACUCU G UGGUGGUC	427	GACCACCA GGCTAGCTACAACGA AGAGTGAG	2755
1923         GUGGUCCU G CUGACAAA         430         TTIGTCAG GGCTAGCTACAAGA AGGACCAC         2758           1927         UCCUGCUG A CAAAUCAA         431         TTIGATTTG GGCTAGCTACAAGGA CAGCAGGA         2759           1931         GCUGACAA A UCAAGAGC         432         GCTCTTGA GGCTAGCTACAACGA TTGTCAGC         2760           1938         AAUCAAGA G CAUUGCUU         433         AAGCAATG GGCTAGCTACAACGA TCTTGAT         2762           1940         UCAAGAGC A UUGCUUU         434         AAAAGCAA GGCTAGCTACAACGA AATGCTCT         2762           1943         AGAGCAUU G CUUUUUUU         435         AACAAAAG GGCTAGCTACAACGA AATGCTCT         2763           1949         UUGCUUUU G UUUCUUAA         436         TTAAGAAA GGCTAGCTACAACGA AAAGCAA         2764           1962         UUAAGAAA A CAACUUU         437         AGAGTTTG GGCTAGCAACGA TTTCTTAA         2765           1966         GAAAACAA A CUCUUUAAA         440         TTTAAAAAG GGCTAGCTACAAGGA TTTTAAAA         2767           1983         UAAAAAUU A CUUUAAA         441         AGTTAAAAG GGCTAGCTACAAGGA TTAAAAGT         2769           1993         UUUUAAAA A UUAACUCA         441         AGTTATAA GGCTAGCTACAAGA ATTTAAAA         2770           1997         AAAUAUUA A UUAACUCA         442         TGAGTTAA GGCTAACAGA ATTTAAAA         2771	1915	ACUCUGUG G UGGUCCUG	428	CAGGACCA GGCTAGCTACAACGA CACAGAGT	2756
1927         UCCUGCUG A CARAUCAA         431         TIGATITIG GGCTAGCTACAAGGA CAGCAGGA         2759           1931         GCUGACAA A UCAAGAGC         432         GCTCTTGA GGCTAGCTACAACGA TTGTCAGC         2760           1938         AAUCAAGA G CAUUGCUU         433         AAGCAATG GGCTAGCTACAACGA TCTTGATT         2761           1940         UCAAGAGC A UUGCUUU         434         AAAGCAAG GGCTAGCTACAACGA CCTCTTGA         2762           1943         AGAGCAUU G CUUUUGUU         435         AACAAAAG GGCTAGCTACAACGA AATGCTCT         2763           1949         UUGCUUUU G UUUCUUAA         436         TTAAGAAA GGCTAGCTACAACGA AATGCTCT         2764           1962         UUAAGAAA A CAAACUCU         437         AAGATTTG GGCTAGCTACAACGA TTTCTTTAA         2765           1966         GAAAACAA A CUCUUUUU         438         AAAAGTAA GGCTAGCTACAACGA TTTTAAAA         2767           1980         UUUUAAAA A UAUUAAACU         441         ATTTAAAA GGCTAGCTACAACGA TTTTAAAA         2767           1991         ACUUUUAA A UAUUAACU         441         AGTTATAA GGCTAGCTACAACGA TTATAAAA         2770           1997         AANUAUUA A CUCAAAAG         443         CTTTTGAG GGCTAGCTACAACGA TTATAATT         2771           2005         ACUCAAAA G UUGAGAUU         444         AATCTCAA GGCTAGCTACAACGA CTCAACCT <t< td=""><td>1918</td><td>CUGUGGUG G UCCUGCUG</td><td>429</td><td>CAGCAGGA GGCTAGCTACAACGA CACCACAG</td><td>2757</td></t<>	1918	CUGUGGUG G UCCUGCUG	429	CAGCAGGA GGCTAGCTACAACGA CACCACAG	2757
1931         GCUGACAA A UCAAGAGC         432         GCTCTTGA GGCTAGCTACAAGGA TTGTCAGC         2760           1938         AAUCAAGA G CAUUGCUU         433         AAGCAATG GGCTAGCTACAAGGA TCTTGATT         2761           1940         UCAAGAGC A UUGCUUU         434         AAAAGCAA GGCTAGCTACAACGA GCTCTTGA         2762           1943         AGAGCAUU G CUUUUGUU         435         AACAAAAG GGCTAGCTACAACGA AATGCCTC         2762           1949         UUGCUUUU G UUUCUUAA         436         TTAAGAAA GGCTAGCTACAACGA AATGCCTA         2764           1960         GAAAACAA A CAAACUCU         437         AGAGTTTG GGCTAGCAACGA TTTCTTAA         2765           1966         GAAAACAA A CUCUUUUU         438         AAAAGGAG GGCTAGCTACAACGA TTTTTAAA         2766           1980         UUUUAAAA A UUACUUUU         439         AAAAGTAA GGCTAGCTACAACGA AATTTTA         2766           1983         UAAAAAUU A CUUUUAAA         440         TTTAAAAA GGCTAGCTACAACGA AATTTTAA         2769           1991         ACUUUAAA         441         AGTTATAA GGCTAGCTACAACGA TATTAAAA         2770           1993         AUAUAAUU A CUUAAAAG         442         TGAGTTAA GGCTAGCAACGA TATTATAA         2771           1997         AACUAUUA A UUAACUCA         441         AGTTTGAG GGCTAGCTACAACGA TATTTTAAA         2770 <td>1923</td> <td>GUGGUCCU G CUGACAAA</td> <td>430</td> <td>TTTGTCAG GGCTAGCTACAACGA AGGACCAC</td> <td>2758</td>	1923	GUGGUCCU G CUGACAAA	430	TTTGTCAG GGCTAGCTACAACGA AGGACCAC	2758
1938	1927	UCCUGCUG A CAAAUCAA	431	TTGATTTG GGCTAGCTACAACGA CAGCAGGA	2759
1940         UCAAGAGC A UUGCUUUU         434         AAAAGCAA GGCTAGCTACAACGA GCTCTTGA         2762           1943         AGAGCAUU G CUUUUGUU         435         AACAAAAG GGCTAGCTACAACGA AATGCTCT         2763           1949         UUGCUUUU G UUUCUUAA         436         TTAAGAAA GGCTAGCTACAACGA AAAAGCAA         2764           1962         UUAAGAAA A CAAACUCU         437         AGAGTTTG GGCTAGCTACAACGA TTTCTTAA         2765           1966         GAAAACAA A CUCUUUUU         438         AAAAAGGA GGCTAGCTACAACGA TTGTTTTC         2766           1980         UUUUAAAA A UUACUUUU         439         AAAAGTAA GGCTAGCTACAACGA TTTTAAAA         2767           1983         UAAAAAUU A CUUUUAAA         440         TTTAAAAG GGCTAGCTACAACGA TATAAAGT         2768           1991         ACUUUUAA A UUAACUCA         441         AGTTAATA GGCTAGCTACAACGA TATAAAGT         2770           1997         AAAUAUUA A CUCAAAAG         443         CTTTTGAG GGCTAGCTACAACGA TATAAATTT         2771           2005         ACUCAAAA G UUGAGAUU         444         AATCTCAA GGCTAGCTACAACGA TAACTATTT         2771           2011         AAGUUGAG A UUUUGGGG         445         CCCCAAAA GGCTAGCTACAACGA CTCACCCAA         2772           2022         GUGGGUGG G UGGUGGC         446         CACCACCA GGCTAGCTACAACGA CACCCCCAA         <	1931	GCUGACAA A UCAAGAGC	432	GCTCTTGA GGCTAGCTACAACGA TTGTCAGC	2760
1943         AGAGCAUU G CUUUUGUU         435         AACAAAAG GGCTAGCTACAACGA AATGCTCT         2763           1949         UUGCUUUU G UUUCUUAA         436         TTAAGAAA GGCTAGCTACAACGA AAAAGCAA         2764           1962         UUAAGAAA A CACUCUU         437         AGAGTTTG GGCTAGCTACAACGA TTTCTTAA         2765           1966         GAAAACAA A CUCUUUUU         438         AAAAAGAG GGCTAGCTACAACGA TTTTAAAA         2767           1980         UUUUAAAA A UUACUUUU         439         AAAAGTAA GGCTAGCTACAACGA ATTTTAAA         2767           1983         UAAAAAUU A CUUUUAAA         440         TTTAAAAG GGCTAGCTACAACGA ATTTTAAA         2769           1991         ACUUUUAAA UUAACUCU         441         AGTTTAATA GGCTAGCTACAACGA ATTTAAAA         2770           1993         UUUUAAAU A UUAACUCA         442         TGAGTTAA GGCTAGCTACAACGA ATTAAAAGT         2779           1997         AAAUAUUA A CUCAAAAG         443         CTTTGAG GGCTAGCTACAACGA TTAAAAGT         2771           2005         ACUCAAAA G UUGAGAUU         444         AATCTCAA GGCTAGCTACAACGA TTATATATT         2771           2011         AAGUUGAG A UUUUGGGG         445         CCCCAAAA GGCTAGCTACAACGA CTCAACCT         2775           2022         UUGGGGUG G UGGUGGCA         447         GCCACCA GGCTAGCTACAACGA CACCACCC         2	1938	AAUCAAGA G CAUUGCUU	433	AAGCAATG GGCTAGCTACAACGA TCTTGATT	2761
1949         UUGCUUUU G UUUCUUAA         436         TTAAGAAA GGCTAGCTACAACGA AAAGCAA         2764           1962         UUAAGAAA A CAAACUCU         437         AGAGTTTG GGCTAGCTACAACGA TTTCTTAA         2765           1966         GAAAACAA A CUCUUUUU         438         AAAAAGGA GGCTAGCTACAACGA TTTTTAAAA         2766           1980         UUUUAAAA A UUACUUUU         439         AAAAGTAA GGCTAGCTACAACGA TTTAAAA         2767           1981         UAAAAAUU A CUUUUAAA         440         TTTAAAAA GGCTAGCTACAACGA ATTTTAAAA         2769           1991         ACUUUUAA A UAUUAACU         441         AGTTATATA GGCTAGCTACAACGA ATTTAAAA         2770           1993         UUUUAAAU A UUAACUCA         442         TGAGTTAA GGCTAGCTACAACGA ATTTAAAA         2770           1997         AAAUAUUA A CUCAAAAG         443         CTTTTGGG GGCTAGCTACAACGA TTATATTT         2771           2005         ACUCAAAA G UUGAGAUU         444         AATCTCAA GGCTAGCTACAACGA TTTTGAGT         2772           2011         AAGUUGAG A UUUGGGG         445         CCCCAAAA GGCTAGCTACAACGA TCCAACTT         2773           2021         AUGGGUG G UGGUGCA         447         GCACACCA GGCTAGCTACAACGA CACCACC         2776           2025         GGUUGUGU G UCCAAGA         448         TTGCTAGCA GGCTAGCTACAACGA ACCACCC         2777	1940	UCAAGAGC A UUGCUUUU	434	AAAAGCAA GGCTAGCTACAACGA GCTCTTGA	2762
1962         UUAAGAAA A CAAACUCU         437         AGAGTTIG GGCTAGCTACAACGA TITCTTAA         2765           1966         GAAAACAA A CUCUUUUU         438         AAAAAGAG GGCTAGCTACAACGA TITCTTTC         2766           1980         UUUUAAAA A UUACUUUU         439         AAAAGTAA GGCTAGCTACAACGA TITTAAAA         2767           1983         UAAAAAUU A CUUUUAAA         440         TITAAAAG GGCTAGCTACAACGA AATTTTTA         2768           1991         ACUUUUAA A UUUAACUC         441         AGTTAATA GGCTAGCTACAACGA TATAAAAGT         2776           1993         UUUUAAAU A UUUAACUCA         442         TGAGTTAA GGCTAGCTACAACGA TATTAAAA         2770           1997         AAAUAUUA A CUCAAAAG         443         CTTTTGAG GGCTAGCTACAACGA TATTAAAA         2770           2005         ACUCAAAA G UUGAGAUU         444         AATCTCAA GGCTAGCTACAACGA TATTAGTT         2772           2011         AAGUUUAGG G UGGUGGU         445         CCCCAAAA GGCTAGCTACAACGA CTCAACCT         2777           2022         UUGGGGUG G UGGUGGUG         447         GCACACCA GGCTAGCTACAACGA CACCCCCA         2775           2025         GGGGUGGU G UGGCCAA         448         TTTGGCAC GGCTAGCTACAACGA CACCCCC         2776           2027         GUGGUGUG G CCAAGACA         450         TGTCTGG GGCTACCACCAC CCCCCA         2777 </td <td>1943</td> <td>AGAGCAUU G CUUUUGUU</td> <td>435</td> <td>AACAAAAG GGCTAGCTACAACGA AATGCTCT</td> <td>2763</td>	1943	AGAGCAUU G CUUUUGUU	435	AACAAAAG GGCTAGCTACAACGA AATGCTCT	2763
1966 GAAAACAA A CUCUUUUU 438 AAAAAGAG GGCTAGCTACAACGA TTGTTTTC 2766 1980 UUUUAAAA A UUACUUUU 439 AAAAGTAA GGCTAGCTACAACGA TTGTTTTC 2767 1983 UAAAAAAUU A CUUUUAAA 440 TTTAAAAA GGCTAGCTACAACGA ATTTTAAAA 2767 1991 ACUUUUAAA A UAUUAACUU 441 AGTTAATA GGCTAGCTACAACGA ATTTTAAAA 2769 1993 UUUUAAAU A UAUUAACUC 442 TGAGTTAA GGCTAGCTACAACGA ATTTAAAAA 2770 1997 AAAUAUUA A CUCAAAAG 442 TGAGTTAA GGCTAGCTACAACGA ATTTAAAA 2770 1997 AAAUAUUA A CUCAAAAG 443 CTTTTGAG GGCTAGCTACAACGA TTAATATTT 2771 2005 ACUCAAAA G UUGAGAUU 444 AATCTCAA GGCTAGCTACAACGA TATTATAT 2771 2011 AAGUUGAG A UUUUGGGG 445 CCCCAAAA GGCTAGCTACAACGA TTTTGAGT 2772 2011 AAGUUGAG A UUUUGGGG 446 CACCACCA GGCTAGCTACAACGA CCCCAAAT 2774 2022 UUGGGGUG G UGGUCGC 447 GCACACCA GGCTAGCTACAACGA CACCACAA 2775 2025 GGGUGGUG G UGGCCAA 448 TTGGCACA GGCTAGCTACAACGA CACCACCC 2776 2027 GUGGUGGU G UGGCCAA 448 TTGGCACA GGCTAGCTACAACGA CACCACCC 2776 2029 GGUGGUG G UGGCCAA 449 TCTTGGCAC GGCTAGCTACAACGA ACCACCC 2777 2029 GGUGGUG G CCAAGACA 450 TCTCTGGCA GGCTAGCTACAACGA ACCACCC 2778 2035 GUGCCAAG A CAUUAAUU 451 AATTAATG GGCTAGCTACAACGA CTGCCACC 2778 2037 GCCAAGAC A UUAAUUU 452 AAAATTAA GGCTAGCTACAACGA CTGCGCC 2780 2041 AGACAUUA A UUUUUUUU 452 AAAATTAA GGCTAGCTACAACGA TATTGTCT 2781 2054 UUUUUAAA A CAAUGAAG 454 CTTCATTG GGCTAGCTACAACGA TATTGTCT 2781 2055 UUUUAACA A UGAAGUGA 455 TCACTTCA GGCTAGCTACAACGA TTAAAAAA 2782 2057 UUUAAACA A UGAAGUGA 455 TCACTTCA GGCTAGCTACAACGA TTATAAAA 2782 2057 UUUAAACA A UGAAGUGA 455 TCACTTCA GGCTAGCTACAACGA TTATAAAA 2782 2057 AAAAAAAA G UGAAAAAG 456 CTTTTTCA GGCTAGCTACAACGA TTATTAAA 2783 2062 ACAAUGAA G UGAAAAAG 456 CTTCTTTCA GGCTAGCTACAACGA TTATTACC 2785 2075 AAAGUUUU A CAAUCUCU 458 AGAGATTG GGCTAGCTACAACGA TTTTTCAC 2787 2086 AUCUCUAA G UUUUACAA 457 TTGTAAAA GGCTAGCTACAACGA TTTTTCAC 2785 2075 AAAGUUUU A CAAUCGAU 458 AGAGATTG GGCTAGCTACAACGA TTTTTCAC 2787 2086 AUCUCUAA G UUUGCCUA 460 TAGCCAAA GGCTAGCTACAACGA TTATAAAC 2787 2091 UAGGUUG G CUAGGUUU 461 AGAACTAG GGCTAGCTACAACGA TAGCCAA 2789 2091 UAGGUUG G CUAGGUUU 461 AGAACTAG GGCTAGCTACAACGA TAGCCAAA 2790 2091 UAG	1949	UUGCUUUU G UUUCUUAA	436	TTAAGAAA GGCTAGCTACAACGA AAAAGCAA	2764
1980         UUUUAAAA A UUACUUUU         439         AAAAGTAA GGCTAGCTACAACGA TTTTAAAA         2767           1983         UAAAAAUU A CUUUUAAA         440         TTTAAAAG GGCTAGCTACAACGA AATTTTA         2768           1991         ACUUUUAA A UAUUAACU         441         AGTTAATA GGCTAGCTACAACGA TTAAAAGT         2769           1993         UUUUAAAU A UUAACUCA         442         TGAGTTAA GGCTAGCACAACGA ATTTAAAA         2770           1997         AAAUAUAA A CUCAAAAG         443         CTTTTGAG GGCTAGCTACAACGA TAATATT         2771           2005         ACUCAAAA G UUGAGAUU         444         AATCTCAA GGCTAGCTACAACGA TATTAGT         2772           2011         AAGUUGAG A UUUUGGGG         445         CCCCAAAA GGCTAGCTACAACGA CTCAACTT         2773           2019         AUUUUGGG G UGGUGUG         446         CACCACCA GGCTAGCTACAACGA CACCACCA         2775           2022         UUGGGGUG G UGUGCCAA         448         TTGGCACA GGCTAGCTACAACGA CACCACCC         2776           2027         GUGGUGUG G UGCCAAGA         449         TCTTGGCA GGCTAGCTACAACGA ACCACCC         2777           2029         GUGCCAAGA         450         TGTCTTGG GGCTAGCAACGA CACCACCC         2778           2031         GCCAAGACA         450         TGTCTTGG GGCTAGCTACAACGA TCTTGGC         2780	1962	UUAAGAAA A CAAACUCU	437	AGAGTTTG GGCTAGCTACAACGA TTTCTTAA	2765
1983         UAAAAAUU A CUUUUAAA         440         TTTAAAAG GGCTAGCTACAACGA AATTTTA         2768           1991         ACUUUUAA A UAUUAACU         441         AGTTAATA GGCTAGCTACAACGA TTAAAAGT         2769           1993         UJUUUAAAU A UJUACUCA         442         TGAGTTAA GGCTAGCTACAACGA ATTTAAAA         2770           1997         AAAUAUUA A CUCAAAAG         443         CTTTTGAG GGCTAGCTACAACGA TATTTTT         2771           2005         ACUCAAAA G UJUAGGGG         444         AATCTCAA GGCTAGCTACAACGA TTTTGAGT         2772           2011         AAGUUGAG A UJUUUGGGG         445         CCCCAAAA GGCTAGCTACAACGA CTCAACTA         2773           2019         AUJUUGGG G UGUGCGUG         446         CACCACCA GGCTAGCTACAACGA CACCCCAA         2774           2022         UJUGGGGUG G UGUGCCAA         448         TTGGCACA GGCTAGCTACAACGA CACCCACC         2776           2027         GUGGUGUG G UGUCCAA         449         TCTTGGCA GGCTAGCTACAACGA ACCCACC         2777           2029         GUGGUGUG G CAAGACA         450         TGTCTTGG GGCTAGCAACGA ACCCACC         2778           2035         GUGCCAAG A CAUUAAUU         451         AATATAATG GGCTAGCAACGA CTTGGCC         2778           2037         GCCAAGAC A UUAAUUU         452         AAAAATTAA GGCTACAACGA TATGTCT         2781	1966	GAAAACAA A CUCUUUUU	438	AAAAAGAG GGCTAGCTACAACGA TTGTTTTC	2766
1991         ACUUUUAA A UAUUAACU         441         AGTTAATA GGCTAGCTACAACGA TTAAAAGT         2769           1993         UUUUAAAU A UUAACUCA         442         TGAGTTAA GGCTAGCTACAACGA ATTTAAAA         2770           1997         AAAUAUUA A CUCAAAAG         443         CTTTTGAG GGCTAGCTACAACGA TAATATTT         2771           2005         ACUCAAAA G UUGAGAUU         444         AATCTCAA GGCTAGCTACAACGA TTTTGAGT         2772           2011         AAGUUGAG A UUUUGGGG         445         CCCCAAAA GGCTAGCTACAACGA CTCAACTT         2773           2019         AUUUUGGG G UGGUGGUG         446         CACCACCA GGCTAGCTACAACGA CACCACA         2775           2022         UUGGGGUG G UGUGCCAA         448         TTGGCACA GGCTAGCTACAACGA CACCACC         2776           2027         GUGGUGGU G UGCCAAA         449         TCTTGGCA GGCTAGCTACAACGA ACCACCC         2776           2027         GUGGUGGU G UGCCAAGA         449         TCTTGGCA GGCTAGCTACAACGA ACCACCC         2777           2029         GUGGUGGU G UGCCAAGA         449         TCTTGGCA GGCTAGCTACAACGA ACCACCAC         2777           2029         GUGGUGGU G CAAGACA         450         TCTCTTGGC AGCTACAACGA ACCACCAC         2777           2029         GUGGUGGU G CAAGACA         450         TCTCTTGGCA GGCTAGCTACAACGA ACTTTGGC         2778 <td>1980</td> <td>UUUUAAAA A UUACUUUU</td> <td>439</td> <td>AAAAGTAA GGCTAGCTACAACGA TTTTAAAA</td> <td>2767</td>	1980	UUUUAAAA A UUACUUUU	439	AAAAGTAA GGCTAGCTACAACGA TTTTAAAA	2767
1993         UUUUAAAU A UUAACUCA         442         TGAGTTAA GGCTAGCTACAACGA ATTTAAAA         2770           1997         AAAUAUUA A CUCAAAAG         443         CTTTTGAG GGCTAGCTACAACGA TAATATTT         2771           2005         ACUCAAAA G UUGAGAUU         444         AATCTCAA GGCTAGCTACAACGA TTTTGAGT         2772           2011         AAGUUGAG A UUUUGGGG         445         CCCCAAAA GGCTAGCTACAACGA CTCAACTT         2773           2019         AUUUUGGG G UGGUGUGC         447         GCACACCA GGCTAGCTACAACGA CACCACCA         2775           2022         UUGGGGUG G UGCCCAA         448         TTGGCACA GGCTAGCTACAACGA CACCACCC         2776           2027         GUGGUGGU G UGCCAAGA         449         TCTTGGCA GGCTAGCTACAACGA ACCACCC         2777           2029         GGUGGUGU G CCAAGACA         450         TGTCTTGG GGCTAGCTACAACGA ACCACCC         2778           2035         GUGCCAAG A CAUUAAUU         451         AATTAATG GGCTAGCTACAACGA ACCACCC         2779           2037         GCCAAGAC A UUAAUUUU         452         AAAATTAA GGCTACAACGA TAATGTCT         2780           2041         AGACAUUA A UUUUUUUU         453         AAAAAAAA GGCTACCAACGA TAATGTCT         2781           2054         UUUUUAAA A CAAUGAAG         454         CTTCATTG GGCTACAACGA TATTAAAA         2783     <	1983	UAAAAAUU A CUUUUAAA	440	TTTAAAAG GGCTAGCTACAACGA AATTTTTA	2768
1997         AAAUAUUA A CUCAAAAG         443         CTTTTGAG GGCTAGCTACAACGA TAATATTT         2771           2005         ACUCAAAA G UUGAGAUU         444         AATCTCAA GGCTAGCTACAACGA TTTTGAGT         2772           2011         AAGUUGAG A UUUUGGGG         445         CCCCAAAA GGCTAGCTACAACGA CTCAACTT         2773           2019         AUUUUGGG G UGGUGUG         446         CACCACCA GGCTAGCTACAACGA CCCCCAAAAT         2774           2022         UUGGGGUG G UGGUGUC         447         GCACACCA GGCTAGCTACAACGA CACCACCC         2776           2025         GGGUGGUG G UGUGCCAA         448         TTGGCACA GGCTAGCTACAACGA CACCACCC         2777           2027         GUGGUGGU G UGCCAAGA         449         TCTTGGCA GGCTAGCTACAACGA ACCACCAC         2777           2029         GUGGUGGU G CCAAGACA         450         TGTCTTGG GGCTAGCTACAACGA ACCACCAC         2778           2035         GUGCCAAGA         450         TGTCTTGG GGCTAGCTACAACGA CTTGGCAC         2779           2037         GCCAAGAC A UUAAUUUU         452         AAAATTAA GGCTAGCTACAACGA TTATGGC         2780           2041         AGACAUUA A UUUUUUUU 453         AAAAAAAA GGCTAGCTACAACGA TAATGTCT         2781           2054         UUUUUAA A CAAUGAAG         454         CTTCATTG GGCTACAACGA TTATAAAA         2782	1991	ACUUUUAA A UAUUAACU	441	AGTTAATA GGCTAGCTACAACGA TTAAAAGT	2769
2005         ACUCAAAA G UUGAGAUU         444         AATCTCAA GGCTAGCTACAACGA TTTTGAGT         2772           2011         AAGUUGAG A UUUUGGGG         445         CCCCAAAA GGCTAGCTACAACGA CTCAACTT         2773           2019         AUUUUGGG G UGGUGUG         446         CACCACCA GGCTAGCTACAACGA CCCCAAAAT         2774           2022         UUGGGGUG G UGUGCCAA         448         TTGGCACA GGCTAGCTACAACGA CACCACCC         2776           2025         GGGUGGUG G UGCCAAGA         449         TCTTGGCA GGCTAGCTACAACGA ACCACCC         2777           2027         GUGGUGUU G CCAAGACA         450         TGTCTTGG GGCTAGCTACAACGA ACCACCC         2778           2035         GUGCCAAG A CAUUAAUU         451         AATTAATG GGCTAGCTACAACGA CTTGGCAC         2779           2037         GCCAAGAC A UUAAUUUU         452         AAAATTAA GGCTAGCTACAACGA GTCTTGGC         2780           2041         AGACAUUA A UUUUUUUU         453         AAAAAAAA GGCTAGCTACAACGA TAATGTCT         2781           2054         UUUUAAACA A UGAAGUGA         454         CTTCATTG GGCTAGCTACAACGA TGTTTAAA         2782           2057         UUUAAACA A UGAAGUGA         455         TCACTTCA GGCTAGCTACAACGA TGTTTAAA         2783           2062         ACAAUGAA G UGAAAAAG         456         CTTTTTCA GGCTAGCTACAACGA TTCATTGT         2	1993	UUUUAAAU A UUAACUCA	442	TGAGTTAA GGCTAGCTACAACGA ATTTAAAA	2770
2011         AAGUUGAG A UUUUGGGG         445         CCCCAAAA GGCTAGCTACAACGA CTCAACTT         2773           2019         AUUUUGGG G UGGUGGUG         446         CACCACCA GGCTAGCTACAACGA CCCAAAAT         2774           2022         UUGGGGUG G UGGUGCC         447         GCACACCA GGCTAGCTACAACGA CACCACCC         2775           2025         GGGUGGUG G UGUCCAA         448         TTGGCACA GGCTAGCTACAACGA CACCACC         2776           2027         GUGGUGGU G UGCCAAGA         449         TCTTGGCA GGCTAGCTACAACGA ACCACCC         2777           2029         GGUGGUGU G CCAAGACA         450         TGTCTTGG GGCTAGCTACAACGA ACCCACC         2778           2035         GUGCCAAG A CAUUAAUU         451         AATTAATG GGCTAGCTACAACGA CTTGGCAC         2779           2037         GCCAAGAC A UUAAUUUU         452         AAAATTAA GGCTAGCTACAACGA TTTGGC         2780           2041         AGACAUUA A UUUUUUUU         453         AAAAAAAA GGCTAGCTACAACGA TAATGTCT         2781           2054         UUUUAAACA A UGAAGUGA         454         CTTCATTG GGCTAGCTACAACGA TGTTTAAA         2782           2057         UUUAAACA A UGAAGUGA         455         TCACTTCA GGCTAGCTACAACGA TTCATTGT         2784           2070         GUGAAAAA G UUUUACAA         457         TTGTAAAA GGCTAGCTACAACGA TTCATCAACGA TTCTTCAC	1997	AAAUAUUA A CUCAAAAG	443	CTTTGAG GGCTAGCTACAACGA TAATATTT	2771
2019 AUUUUGG G UGGUGGUG 446 CACCACCA GGCTAGCTACAACGA CCCAAAAT 2774 2022 UUGGGGUG G UGGUGUC 447 GCACACCA GGCTAGCTACAACGA CACCCCAA 2775 2025 GGGUGGUG G UGUGCCAA 448 TTGGCACA GGCTAGCTACAACGA CACCACCC 2776 2027 GUGGUGGU G UGCCAAGA 449 TCTTGGCA GGCTAGCTACAACGA ACCACCC 2777 2029 GGUGGUGU G CCAAGACA 450 TGTCTTGG GGCTAGCTACAACGA ACCACCC 2778 2035 GUGCCAAG A CAUUAAUU 451 AATTAATG GGCTAGCTACAACGA CTTGGCAC 2779 2037 GCCAAGAC A UUAAUUUU 452 AAAATTAA GGCTAGCTACAACGA GTCTTGGC 2780 2041 AGACAUUA A UUUUUUUU 453 AAAAAAAA GGCTAGCTACAACGA TAATGTCT 2781 2054 UUUUUUAA A CAAUGAAG 454 CTTCATTG GGCTAGCTACAACGA TTAAAAAA 2782 2057 UUUAAACA A UGAAGUGA 455 TCACTTCA GGCTAGCTACAACGA TGTTTAAA 2783 2062 ACAAUGAA G UGAAAAAG 456 CTTTTTCA GGCTAGCTACAACGA TTCATTGT 2784 2070 GUGAAAAA G UUUUACAA 457 TTGTAAAA GGCTAGCTACAACGA TTTTTCAC 2785 2075 AAAGUUU A CAAUCUCU 458 AGAGATTG GGCTAGCTACAACGA TTTTTCAC 2785 2078 GUUUUACA A UCUCUAGG 459 CCTAGAGA GGCTAGCTACAACGA TGTAAAAC 2787 2086 AUCUCUAG G UUUGGCUA 460 TAGCCAAA GGCTAGCTACAACGA CTAGAGAT 2788 2091 UAGGUUUG C CUAGUUCU 461 AGAACTAG GGCTAGCTACAACGA CTAGAGAT 2788 2091 UAGGUUUG C CUAGUUCU 461 AGAACTAG GGCTAGCTACAACGA CAAACCTA 2789 2095 UUUGGCUA G UUCUCUUA 462 TAAGAGAA GGCTAGCTACAACGA TAGCCAAA 2790 2104 UUCUCUUA A CACUGGUU 463 AACCAGTG GGCTAGCTACAACGA TAGGCCAAA 2790	2005	ACUCAAAA G UUGAGAUU	444	AATCTCAA GGCTAGCTACAACGA TTTTGAGT	2772
2022UUGGGGUG G UGGUGUGC447GCACACCA GGCTAGCTACAACGA CACCCCAA27752025GGGUGGUG G UGUGCCAA448TTGGCACA GGCTAGCTACAACGA CACCACCC27762027GUGGUGGU G UGCCAAGA449TCTTGGCA GGCTAGCTACAACGA ACACCACC27772029GGUGGUGU G CCAAGACA450TGTCTTGG GGCTAGCTACAACGA ACACCACC27782035GUGCCAAG A CAUUAAUU451AATTAATG GGCTAGCTACAACGA CTTGGCAC27792037GCCAAGAC A UUAAUUUU452AAAATTAA GGCTAGCTACAACGA GTCTTGGC27802041AGACAUUA A UUUUUUUU453AAAAAAAA GGCTAGCTACAACGA TAATGTCT27812054UUUUUUAA A CAAUGAAG454CTTCATTG GGCTAGCTACAACGA TTAAAAAA27822057UUUAAACA A UGAAGUGA455TCACTTCA GGCTAGCTACAACGA TGTTTAAA27832062ACAAUGAA G UGAAAAAG456CTTTTTCA GGCTAGCTACAACGA TTCATTGT27842070GUGAAAAA G UUUUACAA457TTGTAAAA GGCTAGCTACAACGA TTTTTCAC27852075AAAGUUUU A CAAUCUCU458AGAGATTG GGCTAGCTACAACGA TGTAAAAC27872078GUUUUACA A UCUCUAGG459CCTAGAGA GGCTAGCTACAACGA TGTAAAAC27872086AUCUCUAG G UUUGGCUA460TAGCCAAA GGCTAGCTACAACGA CTAGAGAT27882091UAGGUUUG G CUAGUUCU461AGAACTAG GGCTAGCTACAACGA CAAACCTA27892095UUUGGCUA G UUCUCUUA462TAAGAGAA GGCTAGCTACAACGA TAAGAGAA2790204UUCUCUUA A CACUGGUU463AACCAGTG GGCTAGCTACAACGA TAAGAGAA2791	2011	AAGUUGAG A UUUUGGGG	445	CCCCAAAA GGCTAGCTACAACGA CTCAACTT	2773
2025 GGGUGGUG G UGUGCCAA 448 TTGGCACA GGCTAGCTACAACGA CACCACCC 2776 2027 GUGGUGGU G UGCCAAGA 449 TCTTGGCA GGCTAGCTACAACGA ACCACCAC 2777 2029 GGUGGUGU G CCAAGACA 450 TGTCTTGG GGCTAGCTACAACGA ACACCACC 2778 2035 GUGCCAAG A CAUUAAUUU 451 AATTAATG GGCTAGCTACAACGA CTTGGCAC 2779 2037 GCCAAGAC A UUAAUUUU 452 AAAATTAA GGCTAGCTACAACGA GTCTTGGC 2780 2041 AGACAUUA A UUUUUUUU 453 AAAAAAAA GGCTAGCTACAACGA TAATGTCT 2781 2054 UUUUUUAA A CAAUGAAG 454 CTTCATTG GGCTAGCTACAACGA TTAAAAAA 2782 2057 UUUAAACA A UGAAGUGA 455 TCACTTCA GGCTAGCTACAACGA TGTTTAAA 2783 2062 ACAAUGAA G UGAAAAAG 456 CTTTTTCA GGCTAGCTACAACGA TTCATTGT 2784 2070 GUGAAAAA G UUUUACAA 457 TTGTAAAA GGCTAGCTACAACGA TTTTTCAC 2785 2075 AAAGUUUU A CAAUCUCU 458 AGAGATTG GGCTAGCTACAACGA TTTTTCAC 2785 2078 GUUUUACA A UCUCUAGG 459 CCTAGAGA GGCTAGCTACAACGA TGTAAAAC 2787 2086 AUCUCUAG G UUUGGCUA 460 TAGCCAAA GGCTAGCTACAACGA CTAGAAGAT 2788 2091 UAGGUUUG G CUAGUUCU 461 AGAACTAG GGCTAGCTACAACGA CAAACCTA 2789 2095 UUUGGCUA G UUCUCUUA 462 TAAGAGAA GGCTAGCTACAACGA TAGCCAAA 2790 2104 UUCUCUUA A CACUGGUU 463 AACCAGTG GGCTAGCTACAACGA TAGCCAAA 2790	2019	AUUUUGGG G UGGUGGUG	446	CACCACCA GGCTAGCTACAACGA CCCAAAAT	2774
2027 GUGGUGGU G UGCCAAGA 449 TCTTGGCA GGCTAGCTACAACGA ACCACCAC 2777 2029 GGUGGUGU G CCAAGACA 450 TGTCTTGG GGCTAGCTACAACGA ACACCACC 2778 2035 GUGCCAAG A CAUUAAUU 451 AATTAATG GGCTAGCTACAACGA CTTGGCAC 2779 2037 GCCAAGAC A UUAAUUUU 452 AAAATTAA GGCTAGCTACAACGA GTCTTGGC 2780 2041 AGACAUUA A UUUUUUUUU 453 AAAAAAAA GGCTAGCTACAACGA TAATGTCT 2781 2054 UUUUUUAA A CAAUGAAG 454 CTTCATTG GGCTAGCTACAACGA TTAAAAAA 2782 2057 UUUAAACA A UGAAGUGA 455 TCACTTCA GGCTAGCTACAACGA TGTTTAAA 2783 2062 ACAAUGAA G UGAAAAAG 456 CTTTTTCA GGCTAGCTACAACGA TTCATTGT 2784 2070 GUGAAAAA G UUUUACAA 457 TTGTAAAA GGCTAGCTACAACGA TTTTTCAC 2785 2075 AAAGUUUU A CAAUCUCU 458 AGAGATTG GGCTAGCTACAACGA TTTTTCAC 2786 2078 GUUUUACA A UCUCUAGG 459 CCTAGAGA GGCTAGCTACAACGA TGTAAAAC 2787 2086 AUCUCUAG G UUUGGCUA 460 TAGCCAAA GGCTAGCTACAACGA CTAGAGAT 2788 2091 UAGGUUUG G CUAGUUCU 461 AGAACTAG GGCTAGCTACAACGA CAAACCTA 2789 2095 UUUGGCUA G UUCUCUUA 462 TAAGAGAA GGCTAGCTACAACGA TAGCCAAA 2790 2004 UUCUCUUA A CACUGGUU 463 AACCAGTG GGCTAGCTACAACGA TAGCCAAA 2790 2004 UUCUCUUA A CACUGGUU 463 AACCAGTG GGCTAGCTACAACGA TAGCCAAA 2790	2022	UUGGGGUG G UGGUGUGC	447	GCACACCA GGCTAGCTACAACGA CACCCCAA	2775
GGUGGUGU G CCAAGACA 450 TGTCTTGG GGCTAGCTACAACGA ACACCACC 2778  2035 GUGCCAAG A CAUUAAUU 451 AATTAATG GGCTAGCTACAACGA CTTGGCAC 2779  2037 GCCAAGAC A UUAAUUUU 452 AAAATTAA GGCTAGCTACAACGA GTCTTGGC 2780  2041 AGACAUUA A UUUUUUUUU 453 AAAAAAAA GGCTAGCTACAACGA TAATGTCT 2781  2054 UUUUUUAA A CAAUGAAG 454 CTTCATTG GGCTAGCTACAACGA TAATGTCT 2781  2057 UUUAAACA A UGAAGUGA 455 TCACTTCA GGCTAGCTACAACGA TGTTTAAA 2783  2062 ACAAUGAA G UGAAAAAG 456 CTTTTTCA GGCTAGCTACAACGA TTCATTGT 2784  2070 GUGAAAAA G UUUUACAA 457 TTGTAAAA GGCTAGCTACAACGA TTTTTCAC 2785  2075 AAAGUUUU A CAAUCUCU 458 AGAGATTG GGCTAGCTACAACGA TTTTTCAC 2786  2078 GUUUUACA A UCUCUAGG 459 CCTAGAGA GGCTAGCTACAACGA TGTAAAAC 2787  2086 AUCUCUAG G UUUGGCUA 460 TAGCCAAA GGCTAGCTACAACGA CTAGAGAT 2788  2091 UAGGUUUG G CUAGUUCU 461 AGAACTAG GGCTAGCTACAACGA CAAACCTA 2789  2095 UUUGGCUA G UUCUCUUA 462 TAAGAGAA GGCTAGCTACAACGA TAGCCAAA 2790  2104 UUCUCUUA A CACUGGUU 463 AACCAGTG GGCTAGCTACAACGA TAGCCAAA 2790	2025	GGGUGGUG G UGUGCCAA	448	TTGGCACA GGCTAGCTACAACGA CACCACCC	2776
2035 GUGCCAAG A CAUUAAUU 451 AATTAATG GGCTAGCTACAACGA CTTGGCAC 2779 2037 GCCAAGAC A UUAAUUUU 452 AAAATTAA GGCTAGCTACAACGA GTCTTGGC 2780 2041 AGACAUUA A UUUUUUUU 453 AAAAAAAA GGCTAGCTACAACGA TAATGTCT 2781 2054 UUUUUUAA A CAAUGAAG 454 CTTCATTG GGCTAGCTACAACGA TTAAAAAA 2782 2057 UUUAAACA A UGAAGUGA 455 TCACTTCA GGCTAGCTACAACGA TGTTTAAA 2783 2062 ACAAUGAA G UGAAAAAG 456 CTTTTTCA GGCTAGCTACAACGA TTCATTGT 2784 2070 GUGAAAAA G UUUUACAA 457 TTGTAAAA GGCTAGCTACAACGA TTTTTCAC 2785 2075 AAAGUUUU A CAAUCUCU 458 AGAGATTG GGCTAGCTACAACGA TAAAACTTT 2786 2078 GUUUUACA A UCUCUAGG 459 CCTAGAGA GGCTAGCTACAACGA TATAAAAC 2787 2086 AUCUCUAG G UUUGGCUA 460 TAGCCAAA GGCTAGCTACAACGA CTAGAGAT 2788 2091 UAGGUUUG G CUAGUUCU 461 AGAACTAG GGCTAGCTACAACGA CAAACCTA 2789 2095 UUUGGCUA G UUCUCUUA 462 TAAGAGAA GGCTAGCTACAACGA TAGCCAAA 2790 2104 UUCUCUUA A CACUGGUU 463 AACCAGTG GGCTAGCTACAACGA TAAGAGAA 2791	2027	GUGGUGGU G UGCCAAGA	449	TCTTGGCA GGCTAGCTACAACGA ACCACCAC	2777
2037GCCAAGAC A UUAAUUUU452AAAATTAA GGCTAGCTACAACGA GTCTTGGC27802041AGACAUUA A UUUUUUUU453AAAAAAAA GGCTAGCTACAACGA TAATGTCT27812054UUUUUUAA A CAAUGAAG454CTTCATTG GGCTAGCTACAACGA TTAAAAAA27822057UUUAAACA A UGAAGUGA455TCACTTCA GGCTAGCTACAACGA TGTTTAAA27832062ACAAUGAA G UGAAAAAG456CTTTTTCA GGCTAGCTACAACGA TTCATTGT27842070GUGAAAAA G UUUUACAA457TTGTAAAA GGCTAGCTACAACGA TTTTTCAC27852075AAAGUUUU A CAAUCUCU458AGAGATTG GGCTAGCTACAACGA AAAACTTT27862078GUUUUACA A UCUCUAGG459CCTAGAGA GGCTAGCTACAACGA TGTAAAAC27872086AUCUCUAG G UUUGGCUA460TAGCCAAA GGCTAGCTACAACGA CTAGAGAT27882091UAGGUUUG G CUAGUUCU461AGAACTAG GGCTAGCTACAACGA CAAACCTA27892095UUUGGCUA G UUCUCUUA462TAAGAGAA GGCTAGCTACAACGA TAGCCAAA27902104UUCUCUUA A CACUGGUU463AACCAGTG GGCTAGCTACAACGA TAAGAGAA2791	2029	GGUGGUGU G CCAAGACA	450	TGTCTTGG GGCTAGCTACAACGA ACACCACC	2778
2037GCCAAGAC A UUAAUUU452AAAATTAA GGCTAGCTACAACGA GTCTTGGC27802041AGACAUUA A UUUUUUUU453AAAAAAAA GGCTAGCTACAACGA TAATGTCT27812054UUUUUUAA A CAAUGAAG454CTTCATTG GGCTAGCTACAACGA TTAAAAAA27822057UUUAAACA A UGAAGUGA455TCACTTCA GGCTAGCTACAACGA TGTTTAAA27832062ACAAUGAA G UGAAAAAG456CTTTTTCA GGCTAGCTACAACGA TTCATTGT27842070GUGAAAAA G UUUUACAA457TTGTAAAA GGCTAGCTACAACGA TTTTTCAC27852075AAAGUUUU A CAAUCUCU458AGAGATTG GGCTAGCTACAACGA AAAACTTT27862078GUUUUACA A UCUCUAGG459CCTAGAGA GGCTAGCTACAACGA TGTAAAAC27872086AUCUCUAG G UUUGGCUA460TAGCCAAA GGCTAGCTACAACGA CTAGAGAT27882091UAGGUUUG G CUAGUUCU461AGAACTAG GGCTAGCTACAACGA CAAACCTA27892095UUUGGCUA G UUCUCUUA462TAAGAGAA GGCTAGCTACAACGA TAGCCAAA27902104UUCUCUUA A CACUGGUU463AACCAGTG GGCTAGCTACAACGA TAAGAGAA2791	2035	GUGCCAAG A CAUUAAUU	451	AATTAATG GGCTAGCTACAACGA CTTGGCAC	
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2054UUUUUUAA A CAAUGAAG454CTTCATTG GGCTAGCTACAACGA TTAAAAAA27822057UUUAAACA A UGAAGUGA455TCACTTCA GGCTAGCTACAACGA TGTTTAAA27832062ACAAUGAA G UGAAAAAG456CTTTTTCA GGCTAGCTACAACGA TTCATTGT27842070GUGAAAAA G UUUUACAA457TTGTAAAA GGCTAGCTACAACGA TTTTTCAC27852075AAAGUUUU A CAAUCUCU458AGAGATTG GGCTAGCTACAACGA AAAACTTT27862078GUUUUACA A UCUCUAGG459CCTAGAGA GGCTAGCTACAACGA TGTAAAAC27872086AUCUCUAG G UUUGGCUA460TAGCCAAA GGCTAGCTACAACGA CTAGAGAT27882091UAGGUUUG G CUAGUUCU461AGAACTAG GGCTAGCTACAACGA CAAACCTA27892095UUUGGCUA G UUCUCUUA462TAAGAGAA GGCTAGCTACAACGA TAGCCAAA27902104UUCUCUUA A CACUGGUU463AACCAGTG GGCTAGCTACAACGA TAAGAGAA2791	2041	AGACAUUA A UUUUUUUU	453	*	
2057UUUAAACA A UGAAGUGA455TCACTTCA GGCTAGCTACAACGA TGTTTAAA27832062ACAAUGAA G UGAAAAAG456CTTTTTCA GGCTAGCTACAACGA TTCATTGT27842070GUGAAAAA G UUUUACAA457TTGTAAAA GGCTAGCTACAACGA TTTTTCAC27852075AAAGUUUU A CAAUCUCU458AGAGATTG GGCTAGCTACAACGA AAAACTTT27862078GUUUUACA A UCUCUAGG459CCTAGAGA GGCTAGCTACAACGA TGTAAAAC27872086AUCUCUAG G UUUGGCUA460TAGCCAAA GGCTAGCTACAACGA CTAGAGAT27882091UAGGUUUG G CUAGUUCU461AGAACTAG GGCTAGCTACAACGA CAAACCTA27892095UUUGGCUA G UUCUCUUA462TAAGAGAA GGCTAGCTACAACGA TAGCCAAA27902104UUCUCUUA A CACUGGUU463AACCAGTG GGCTAGCTACAACGA TAAGAGAA2791	2054	UUUUUUAA A CAAUGAAG	454		
2062 ACAAUGAA G UGAAAAAG 456 CTTTTTCA GGCTAGCTACAACGA TTCATTGT 2784 2070 GUGAAAAA G UUUUACAA 457 TTGTAAAA GGCTAGCTACAACGA TTCATTGT 2785 2075 AAAGUUUU A CAAUCUCU 458 AGAGATTG GGCTAGCTACAACGA AAAACTTT 2786 2078 GUUUUACA A UCUCUAGG 459 CCTAGAGA GGCTAGCTACAACGA TGTAAAAC 2787 2086 AUCUCUAG G UUUGGCUA 460 TAGCCAAA GGCTAGCTACAACGA CTAGAGAT 2788 2091 UAGGUUUG G CUAGUUCU 461 AGAACTAG GGCTAGCTACAACGA CAAACCTA 2789 2095 UUUGGCUA G UUCUCUUA 462 TAAGAGAA GGCTAGCTACAACGA TAGCCAAA 2790 2104 UUCUCUUA A CACUGGUU 463 AACCAGTG GGCTAGCTACAACGA TAAGAGAA 2791	2057	UUUAAACA A UGAAGUGA	455		
2070 GUGAAAAA G UUUUACAA 457 TTGTAAAA GGCTAGCTACAACGA TTTTTCAC 2785 2075 AAAGUUUU A CAAUCUCU 458 AGAGATTG GGCTAGCTACAACGA AAAACTTT 2786 2078 GUUUUACA A UCUCUAGG 459 CCTAGAGA GGCTAGCTACAACGA TGTAAAAC 2787 2086 AUCUCUAG G UUUGGCUA 460 TAGCCAAA GGCTAGCTACAACGA CTAGAGAT 2788 2091 UAGGUUUG G CUAGUUCU 461 AGAACTAG GGCTAGCTACAACGA CAAACCTA 2789 2095 UUUGGCUA G UUCUCUUA 462 TAAGAGAA GGCTAGCTACAACGA TAGCCAAA 2790 2104 UUCUCUUA A CACUGGUU 463 AACCAGTG GGCTAGCTACAACGA TAAGAGAA 2791	2062		456		
2075 AAAGUUUU A CAAUCUCU 458 AGAGATTG GGCTAGCTACAACGA AAAACTTT 2786 2078 GUUUUACA A UCUCUAGG 459 CCTAGAGA GGCTAGCTACAACGA TGTAAAAC 2787 2086 AUCUCUAG G UUUGGCUA 460 TAGCCAAA GGCTAGCTACAACGA CTAGAGAT 2788 2091 UAGGUUUG G CUAGUUCU 461 AGAACTAG GGCTAGCTACAACGA CAAACCTA 2789 2095 UUUGGCUA G UUCUCUUA 462 TAAGAGAA GGCTAGCTACAACGA TAGCCAAA 2790 2104 UUCUCUUA A CACUGGUU 463 AACCAGTG GGCTAGCTACAACGA TAAGAGAA 2791	2070	GUGAAAAA G UUUUACAA			
2078 GUUUUACA A UCUCUAGG 459 CCTAGAGA GGCTAGCTACAACGA TGTAAAAC 2787 2086 AUCUCUAG G UUUGGCUA 460 TAGCCAAA GGCTAGCTACAACGA CTAGAGAT 2788 2091 UAGGUUUG G CUAGUUCU 461 AGAACTAG GGCTAGCTACAACGA CAAACCTA 2789 2095 UUUGGCUA G UUCUCUUA 462 TAAGAGAA GGCTAGCTACAACGA TAGCCAAA 2790 2104 UUCUCUUA A CACUGGUU 463 AACCAGTG GGCTAGCTACAACGA TAAGAGAA 2791	2075		458		
2086 AUCUCUAG G UUUGGCUA 460 TAGCCAAA GGCTAGCTACAACGA CTAGAGAT 2788 2091 UAGGUUUG G CUAGUUCU 461 AGAACTAG GGCTAGCTACAACGA CAAACCTA 2789 2095 UUUGGCUA G UUCUCUUA 462 TAAGAGAA GGCTAGCTACAACGA TAGCCAAA 2790 2104 UUCUCUUA A CACUGGUU 463 AACCAGTG GGCTAGCTACAACGA TAAGAGAA 2791	2078	GUUUUACA A UCUCUAGG			
2091 UAGGUUUG G CUAGUUCU 461 AGAACTAG GGCTAGCTACAACGA CAAACCTA 2789 2095 UUUGGCUA G UUCUCUUA 462 TAAGAGAA GGCTAGCTACAACGA TAGCCAAA 2790 2104 UUCUCUUA A CACUGGUU 463 AACCAGTG GGCTAGCTACAACGA TAAGAGAA 2791	2086		460		
2095 UUUGGCUA G UUCUCUUA 462 TAAGAGAA GGCTAGCTACAACGA TAGCCAAA 2790 2104 UUCUCUUA A CACUGGUU 463 AACCAGTG GGCTAGCTACAACGA TAAGAGAA 2791	2091		461		
2104 UUCUCUUA A CACUGGUU 463 AACCAGTG GGCTAGCTACAACGA TAAGAGAA 2791	2095				
	2104				
2106   CUCUUAAC A CUGGUUAA   464   TTAACCAG GGCTAGATGAACGA GTTAAGAG   2792	2106	CUCUUAAC A CUGGUUAA	464		

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2110	UAACACUG G UUAAAUUA	465	TAATTTAA GGCTAGCTACAACGA CAGTGTTA	2793
2115	CUGGUUAA A UUAACAUU	466	AATGTTAA GGCTAGCTACAACGA TTAACCAG	2794
2119	UUAAAUUA A CAUUGCAU	467	ATGCAATG GGCTAGCTACAACGA TAATTTAA	2795
2121	AAAUUAAC A UUGCAUAA	468	TTATGCAA GGCTAGCTACAACGA GTTAATTT	2796
2124	UUAACAUU G CAUAAACA	469	TGTTTATG GGCTAGCTACAACGA AATGTTAA	2797
2126	AACAUUGC A UAAACACU	470	AGTGTTTA GGCTAGCTACAACGA GCAATGTT	2798
2130	UUGCAUAA A CACUUUUC	471	GAAAAGTG GGCTAGCTACAACGA TTATGCAA	2799
2132	GCAUAAAC A CUUUUCAA	472	TTGAAAAG GGCTAGCTACAACGA GTTTATGC	2800
2141	CUUUUCAA G UCUGAUCC	473	GGATCAGA GGCTAGCTACAACGA TTGAAAAG	2801
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2150	UCUGAUCC A UAUUUAAU	475	ATTAAATA GGCTAGCTACAACGA GGATCAGA	2803
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2198	UUUGAUAA A UUUAAAAU	485	ATTTTAAA GGCTAGCTACAACGA TTATCAAA	2813
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2207	UUUAAAAU G UUACUUAU	487	ATAAGTAA GGCTAGCTACAACGA ATTTTAAA	2815
2210	AAAAUGUU A CUUAUUUU	488	AAAATAAG GGCTAGCTACAACGA AACATTTT	2816
2214	UGUUACUU A UUUUAAAA	489	TTTTAAAA GGCTAGCTACAACGA AAGTAACA	2817
2222	AUUUUAAA A UAAAUGAA	490	TTCATTTA GGCTAGCTACAACGA TTTAAAAT	2818
2226	UAAAAUAA A UGAAGUGA	491	TCACTTCA GGCTAGCTACAACGA TTATTTTA	2819
2231	UAAAUGAA G UGAGAUGG	492	CCATCTCA GGCTAGCTACAACGA TTCATTTA	2820
2236	GAAGUGAG A UGGCAUGG	493	CCATGCCA GGCTAGCTACAACGA CTCACTTC	2821
2239	GUGAGAUG G CAUGGUGA	494	TCACCATG GGCTAGCTACAACGA CATCTCAC	2822
2241	GAGAUGGC A UGGUGAGG	495	CCTCACCA GGCTAGCTACAACGA GCCATCTC	2823
2244	AUGGCAUG G UGAGGUGA	496	TCACCTCA GGCTAGCTACAACGA CATGCCAT	2824
2249	AUGGUGAG G UGAAAGUA	497	TACTTTCA GGCTAGCTACAACGA CTCACCAT	2825
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2273	ACUAGGUU G UUGGUGAC	503	GTCACCAA GGCTAGCTACAACGA AACCTAGT	2831
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2280	UGUUGGUG A CUUAGGUU	505	AACCTAAG GGCTAGCTACAACGA CACCAACA	2833
2286	UGACUUAG G UUCUAGAU	506	ATCTAGAA GGCTAGCTACAACGA CTAAGTCA	2834
2293	GGUUCUAG A UAGGUGUC	507	GACACCTA GGCTAGCTACAACGA CTAGAACC	2835
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2299	AGAUAGGU G UCUUUUAG	509	CTAAAAGA GGCTAGCTACAACGA ACCTATCT	2837
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2333	CAUCACUU A CUAUCCAU	515	ATGGATAG GGCTAGCTACAACGA AAGTGATG	2843
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2363	AAGAAGUC A UCUCAAAC	521	GTTTGAGA GGCTAGCTACAACGA GACTTCTT	2849
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2390	UUUUUUU A CACUAUGU	524	ACATAGTG GGCTAGCTACAACGA AAAAAAAA	2852
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2440	UUUGUCAA G CUCAGCAC	539	GTGCTGAG GGCTAGCTACAACGA TTGACAAA	2867 .
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2575	UUAGUGUC A UCUUGCCU	571	AGGCAAGA GGCTAGCTACAACGA GACACTAA	2899
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2632 2641	UUCCCCUA A CCAUAAGA	586	TCTTATGG GGCTAGCTACAACGA TAGGGGAA	2914
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2644	ACCAUAAG A UUUACUGC	588	GCAGTAAA GGCTAGCTACAACGA CTTATGGT	2916
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2751	CAGAUACC A UAAAGGGA	611	TCCCTTTA GGCTAGCTACAACGA GGTATCTG	2939
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2775	AAUCACUA A UUUUCAGG	616	CCTGAAAA GGCTAGCTACAACGA TAGTGATT	2944
2779	AUUUUCAG G UGGUGGCU	617	AGCCACCA GGCTAGCTACAACGA CTGAAAAT	2945
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2790		619	AGCATCAG GGCTAGCTACAACGA CACCACCT	2947
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2131	1 3000000 H OGCOOOGA	1 020		

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UGGUAACA G UAAUACAU	654	ATGTATTA GGCTAGCTACAACGA TGTTACCA	2982
UAACAGUA A UACAUUCC	655	GGAATGTA GGCTAGCTACAACGA TACTGTTA	2983
ACAGUAAU A CAUUCCAU	656	ATGGAATG GGCTAGCTACAACGA ATTACTGT	2984
AGUAAUAC A UUCCAUUG	657	CAATGGAA GGCTAGCTACAACGA GTATTACT	2985
UACAUUCC A UUGUUUUA	658	TAAAACAA GGCTAGCTACAACGA GGAATGTA	2986
AUUCCAUU G UUUUAGUA	659	TACTAAAA GGCTAGCTACAACGA AATGGAAT	2987
UUGUUUUA G UAACCAGA	660	TCTGGTTA GGCTAGCTACAACGA TAAAACAA	2988
UUUUAGUA A CCAGAAAU	661	ATTTCTGG GGCTAGCTACAACGA TACTAAAA	2989
AACCAGAA A UCUUCAUG	662	CATGAAGA GGCTAGCTACAACGA TTCTGGTT	2990
AAAUCUUC A UGCAAUGA	663	TCATTGCA GGCTAGCTACAACGA GAAGATTT	2991
AUCUUCAU G CAAUGAAA	664	TTTCATTG GGCTAGCTACAACGA ATGAAGAT	2992
UUCAUGCA A UGAAAAAU	665	ATTTTCA GGCTAGCTACAACGA TGCATGAA	2993
AAUGAAAA A UACUUUAA	666	TTAAAGTA GGCTAGCTACAACGA TTTTCATT	2994
UGAAAAAU A CUUUAAUU	667	AATTAAAG GGCTAGCTACAACGA ATTTTTCA	2995
AUACUUUA A UUCAUGAA	668	TTCATGAA GGCTAGCTACAACGA TAAAGTAT	2996
UUUAAUUC A UGAAGCUU	669		2997
UUCAUGAA G CUUACUUU	670		2998
UGAAGCUU A CUUUUUUU	671		2999
UUUUUUUG G UGUCAGAG			
	UGCUUUGAAC A UCUCUUUG AUCUCUUU G CUGCCCAA UCUUUGCU G CCCAAUCC GCUGCCCA A UCCAUUAG CCCAAUCC A UUAGCGAC AUCCAUUA G CGACAGUA CAUUAGCG A CAGUAGGA LUAGCGACA G UAGGAUUU ACAGUAGA A UCUUUCAA AUUUUUCA A CCCUGGUA ACCCUGGU A UGAAAAAU AAACAGUA A UACAUUAG CCUAGGA A UCUUAGUA ACAGUAGG A UUUUAGUA ACAGUAGG A UUUAAUAA ACCCUGGU A UGAAAAAU AAACAGAA A CCCUGGUA CAGAACCCU G UGGAAGGA AUGAAUAG A UUUAAUAA AGAAUUUA A UAAAGAUA AGAAUUUA A UAAAGAUA AGAAUAG A UUCCUUAG CUUAGGAA A UCUAUAG CUUAGGAA A CCCUAUCC AGAACCC A UCCUAUCC AGAACC A UCCAGUGG CCUAUCCA G UGGAAGAA AAGAUAGA A UUCCUUAG AAAGAUA G UGCAGAAAA AAGAUAGU A UAACUAU CUUAGGUA A UCUAUAAC CUUAGGAC A UCUAUAC CUAGGAC A UCUAUAC CUAGGAC A UCUAUAC CUAGGAC A UCUAUAC CUAGGAC A UCACUCU CUAGGAC A CUACUCCU CUAGGAC A CAGAAAAA AACCAGAA A CAGUAAUA CUCCUGGU A CAGUAAUA CUCCUGGU A CAGUAAUA CUCCUGGU A CAGUAAUA CUACAGUA A CAGUAAUA CUCCUGGU A COCCUGU CUAGGAC A UGAAAAAU CUCCUGGU A CUCUCUUCA CUAGAAAAU CUCCUGGU A COCCUCUUCAUG CUAGAAAAU CUCCUGGU A CUCUCUUCAUG CUAGAAAAU CUCCUGGU A COCCUCUUCAUG CUAGAAAAAU CUCCUGGU A COCCUCUUCAUG CUGCUGU A COCCUCUCUUCAUG CUAGAAAAU CUCUCAUG A UGAAAAAU CUCUCAUG A UGAAAAAU CUCUCAUGA A UGAAAAAU CUCCUGGU A CUUCAUGA CUUCAUGAAAAU CUCAUGAAAAU CUCCUGGU A COCCUCUUCUCUCUCUCUCUCUCUCUCUCUCUCUCUCUC	UGCUUUGA A         CAUCUCUU         623           CUUUUGAAC A         UCUCUUUG         623           AUCUCUUU G         CUGCCCAA         624           UCUUUUGCU G         CCCCAAUCC         625           GCUGCCCA A         UCCAUUAG         626           CCCAAUCC A         UUAGCGAC         627           AUCCAUUA G         CGACAGUA         628           CAUUAGCG A         CAGUAGGA         629           UAGCGACA G         UAGGAUUU         630           ACAGUAGG A         UUUUUCAA         631           AUUUUUCAA         631         632           CCAACCCUG G         UAGAAUAGA         633           ACCCUGGU A         UGAAUAGA         634           UGGUAUGA A         UAGACAGA         635           AUGAAUAGA A         CAGAACCC         636           UAGACAGA A         CCCUAUCC         637           AGAACCCU A         UCCAGUGG         638           CCUAUCCA G         UGGAAGGA         639           GAAAGGA A         UUUAAUAA         640           AGAAUUUA A         UAAAGAUA         641           UAAAGAUAG         G42           UUAAAGAGA A         UUCCUUAG         645	UGCUUUGA A CAUCUCUU         622         AAGAGATG GGCTAGCTACAACGA TCAAAGCA           CUUUGAAC A UCUCUUUG         623         CAAAGAGA GGCTAGCTACAACGA GTTCAAAGA           AUCUCUUU G CUGCCCAA         624         TTGGGCAG GGCTAGCTACAACGA AAGAAGA           AUCUCUUUGU G CUCCAUCC         625         GGATTGGG GGCTAGCTACAACGA AGCAAAGA           GCUGCCCA A UCCAUUAG         626         CTAATGG GGCTAGCTACAACGA GACTAGGA           GCUGCCCA C UUAGGAC         627         GTGGTAA GGCTAGCTACAACGA GATTGGG           CCCCAAUCC         628         TACTGTG GGCTAGCTACAACGA CATTAGGAT           CAUUAGCA C A GUAGGAUU         630         AAATCCTA GGCTAGCTACAACGA CATTAGT           UAGCGACA G UAGGAUU         631         TTGAAAAA GGCTAGCTACAACGA CATCATT           ACAGUAGG A UUUUUCAA         631         TTGAAAAA GGCTAGCTACAACGA CAGGGTT           ACACCUGG UAUGAAUA         633         TATCATTCA GGCTAGCTACAACGA CAGGGTT           ACCCUGGU A UGAAUAGA         634         TCTATTCA GGCTAGCTACAACGA CAGGGTT           AUGUAUGA A UGAACAGA         635         TTGTTTA GGCTAGCTACAACGA TCATTCTAT           UAGACAGA A CCCUAUCC         637         GGATTAGG         GGCTTACTACAACGA TCATTCTAT           UAGACAGA A CCCUAUCC         637         GGATTAGGA         GCTAGCTACAACGA TCTTCTA           UAGAAGAA A UUUAAAA         640         TTATTAAA GGCTAGCTACAACGA TCTT

3046	UUUUUGGU G UCAGAGUC	673	GACTCTGA GGCTAGCTACAACGA ACCAAAAA	3001
3052	GUGUCAGA G UCUCGCUC	674	GAGCGAGA GGCTAGCTACAACGA TCTGACAC	3002
3057	AGAGUCUC G CUCUUGUC	675	GACAAGAG GGCTAGCTACAACGA GAGACTCT	3003
	UCGCUCUU G UCACCCAG	676	CTGGGTGA GGCTAGCTACAACGA AAGAGCGA	3004
3063	CUCUUGUC A CCCAGGCU	677	AGCCTGGG GGCTAGCTACAACGA GACAAGAG	3005
3066	UCACCCAG G CUGGAAUG	678	CATTCCAG GGCTAGCTACAACGA CTGGGTGA	3006
3072	AGGCUGGA A UGCAGUGG	679	CCACTGCA GGCTAGCTACAACGA TCCAGCCT	3007
3078		680	CGCCACTG GGCTAGCTACAACGA ATTCCAGC	3008
3080	GCUGGAAU G CAGUGGCG	681	TGGCGCCA GGCTAGCTACAACGA TGCATTCC	3009
3083	GGAAUGCA G UGGCGCCA	682	AGATGGCG GGCTAGCTACAACGA CACTGCAT	3010
3086	AUGCAGUG G CGCCAUCU		TGAGATGG GGCTAGCTACAACGA GCCACTGC	3011
3088	GCAGUGGC G CCAUCUCA	683	AGCTGAGA GGCTAGCTACAACGA GGCGCCAC	3012
3091	GUGGCGCC A UCUCAGCU	684	GCAGTGAG GGCTAGCTACAACGA TGAGATGG	3013
3097	CCAUCUCA G CUCACUGC	685	GCTGCAG GGCTAGCTACAACGA GAGCTGAG	3014
3101	CUCAGCUC A CUGCAACC	686	GAAGGTTG GGCTAGCTACAACGA AGTGAGCT	3015
3104	AGCUCACU G CAACCUUC	687	ATGGAAGG GGCTAGCTACAACGA TGCAGTGA	3016
3107	UCACUGCA A CCUUCCAU	688		3017
3114	AACCUUCC A UCUUCCCA	689	TGGGAAGA GGCTAGCTACAACGA GGAAGGTT	3018
3124	CUUCCCAG G UUCAAGCG	690	CGCTTGAA GGCTAGCTACAACGA CTGGGAAG	3019
3130	AGGUUCAA G CGAUUCUC	691	GAGAATCG GGCTAGCTACAACGA TTGAACCT	3020
3133	UUCAAGCG A UUCUCGUG	692	CACGAGAA GGCTAGCTACAACGA CGCTTGAA	
3139	CGAUUCUC G UGCCUCGG	693	CCGAGGCA GGCTAGCTACAACGA GAGAATCG	3021
3141	AUUCUCGU G CCUCGGCC	694	GGCCGAGG GGCTAGCTACAACGA ACGAGAAT	3022
3147	GUGCCUCG G CCUCCUGA	695	TCAGGAGG GGCTAGCTACAACGA CGAGGCAC	3023.
3156	CCUCCUGA G UAGCUGGG	696	CCCAGCTA GGCTAGCTACAACGA TCAGGAGG	3024
3159	CCUGAGUA G CUGGGAUU	697	AATCCCAG GGCTAGCTACAACGA TACTCAGG	3025
3165	UAGCUGGG A UUACAGGC	698_	GCCTGTAA GGCTAGCTACAACGA CCCAGCTA	3026
3168	CUGGGAUU A CAGGCGUG	699	CACGCCTG GGCTAGCTACAACGA AATCCCAG	3027
3172	GAUUACAG G CGUGUGCA	700	TGCACACG GGCTAGCTACAACGA CTGTAATC	3028
3174	UUACAGGC G UGUGCACU	701	AGTGCACA GGCTAGCTACAACGA GCCTGTAA	3029
3176	ACAGGCGU G UGCACUAC	702	GTAGTGCA GGCTAGCTACAACGA ACGCCTGT	3030
3178	AGGCGUGU G CACUACAC	703	GTGTAGTG GGCTAGCTACAACGA ACACGCCT	3031
3180	GCGUGUGC A CUACACUC	704	GAGTGTAG GGCTAGCTACAACGA GCACACGC	3032
3183	UGUGCACU A CACUCAAC	705	GTTGAGTG GGCTAGCTACAACGA AGTGCACA	3033
3185	UGCACUAC A CUCAACUA	706	TAGTTGAG GGCTAGCTACAACGA GTAGTGCA	3034
3190	UACACUCA A CUAAUUUU	707	AAAATTAG GGCTAGCTACAACGA TGAGTGTA	3035
3194	CUCAACUA A UUUUUGUA	708	TACAAAAA GGCTAGCTACAACGA TAGTTGAG	3036
3200	UAAUUUUU G UAUUUUUA	709	TAAAAATA GGCTAGCTACAACGA AAAAATTA	3037
3202	AUUUUUGU A UUUUUAGG	710	CCTAAAAA GGCTAGCTACAACGA ACAAAAAT	3038
3215	UAGGAGAG A CGGGGUUU	711	AAACCCCG GGCTAGCTACAACGA CTCTCCTA	3039
3220	GAGACGGG G UUUCACCU	712	AGGTGAAA GGCTAGCTACAACGA CCCGTCTC	3040
3225	GGGGUUUC A CCUGUUGG	713	CCAACAGG GGCTAGCTACAACGA GAAACCCC	3041
3229	UUUCACCU G UUGGCCAG	714	CTGGCCAA GGCTAGCTACAACGA AGGTGAAA	3042
3233	ACCUGUUG G CCAGGCUG	715	CAGCCTGG GGCTAGCTACAACGA CAACAGGT	3043
3238	UUGGCCAG G CUGGUCUC	716	GAGACCAG GGCTAGCTACAACGA CTGGCCAA	3044
3242	CCAGGCUG G UCUCGAAC	717	GTTCGAGA GGCTAGCTACAACGA CAGCCTGG	3045
3249	GGUCUCGA A CUCCUGAC	718,	GTCAGGAG GGCTAGCTACAACGA TCGAGACC	3046
3256	AACUCCUG A CCUCAAGU	719	ACTTGAGG GGCTAGCTACAACGA CAGGAGTT	3047
3263	GACCUCAA G UGAUUCAC	720	GTGAATCA GGCTAGCTACAACGA TTGAGGTC	3048
3266	CUCAAGUG A UUCACCCA	721	TGGGTGAA GGCTAGCTACAACGA CACTTGAG	3049
3270	AGUGAUUC A CCCACCUU	722	AAGGTGGG GGCTAGCTACAACGA GAATCACT	3050
3274	AUUCACCC A CCUUGGCC	723	GGCCAAGG GGCTAGCTACAACGA GGGTGAAT	3051
3280	CCACCUUG G CCUCAUAA	724	TTATGAGG GGCTAGCTACAACGA CAAGGTGG	3052



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3285	UUGGCCUC A UAAACCUG	725	CAGGTTTA GGCTAGCTACAACGA GAGGCCAA	3053
3289	CCUCAUAA A CCUGUUUU	726	AAAACAGG GGCTAGCTACAACGA TTATGAGG	3054
3293	AUAAACCU G UUUUGCAG	727	CTGCAAAA GGCTAGCTACAACGA AGGTTTAT	3055
3298	CCUGUUUU G CAGAACUC	728	GAGTTCTG GGCTAGCTACAACGA AAAACAGG	3056
3303	UUUGCAGA A CUCAUUUA	729	TAAATGAG GGCTAGCTACAACGA TCTGCAAA	3057
3307	CAGAACUC A UUUAUUCA	730	TGAATAAA GGCTAGCTACAACGA GAGTTCTG	3058
3311	ACUCAUUU A UUCAGCAA	731	TTGCTGAA GGCTAGCTACAACGA AAATGAGT	3059
3316	UUUAUUCA G CAAAUAUU	732	AATATTTG GGCTAGCTACAACGA TGAATAAA	3060
3320	UUCAGCAA A UAUUUAUU	733	AATAAATA GGCTAGCTACAACGA TTGCTGAA	3061
3322	CAGCAAAU A UUUAUUGA	734	TCAATAAA GGCTAGCTACAACGA ATTTGCTG	3062
3326	AAAUAUUU A UUGAGUGC	735	GCACTCAA GGCTAGCTACAACGA AAATATTT	3063
3331	UUUAUUGA G UGCCUACC	736	GGTAGGCA GGCTAGCTACAACGA TCAATAAA	3064
3333	UAUUGAGU G CCUACCAG	737	· CTGGTAGG GGCTAGCTACAACGA ACTCAATA	3065
3337	GAGUGCCU A CCAGAUGC	738	GCATCTGG GGCTAGCTACAACGA AGGCACTC	3066
3342	CCUACCAG A UGCCAGUC	739	GACTGGCA GGCTAGCTACAACGA CTGGTAGG	3067
3344	UACCAGAU G CCAGUCAC	740	GTGACTGG GGCTAGCTACAACGA ATCTGGTA	3068
3348	AGAUGCCA G UCACCGCA	741	TGCGGTGA GGCTAGCTACAACGA TGGCATCT	3069
3351	UGCCAGUC A CCGCACAA	742	TTGTGCGG GGCTAGCTACAACGA GACTGGCA	3070
3354	CAGUCACC G CACAAGGC	743	GCCTTGTG GGCTAGCTACAACGA GGTGACTG	3071
3356	GUCACCGC A CAAGGCAC	744	GTGCCTTG GGCTAGCTACAACGA GCGGTGAC	3072
3361	CGCACAAG G CACUGGGU	745	ACCCAGTG GGCTAGCTACAACGA CTTGTGCG	3073
3363	CACAAGGC A CUGGGUAU	746	ATACCCAG GGCTAGCTACAACGA GCCTTGTG	3074
3368	GGCACUGG G UAUAUGGU	747	ACCATATA GGCTAGCTACAACGA CCAGTGCC	3075
3370	CACUGGGU A UAUGGUAU	748	ATACCATA GGCTAGCTACAACGA ACCCAGTG	3076
3372	CUGGGUAU A UGGUAUCC	749	GGATACCA GGCTAGCTACAACGA ATACCCAG	3077
3375	GGUAUAUG G UAUCCCCA	750	TGGGGATA GGCTAGCTACAACGA CATATACC	3078
3377	UAUAUGGU A UCCCCAAA	751	TTTGGGGA GGCTAGCTACAACGA ACCATATA	3079
3385	AUCCCCAA A CAAGAGAC	752	GTCTCTTG GGCTAGCTACAACGA TTGGGGAT	3080
3392	AACAAGAG A CAUAAUCC	753	GGATTATG GGCTAGCTACAACGA CTCTTGTT	3081
3394	CAAGAGAC A UAAUCCCG	754	CGGGATTA GGCTAGCTACAACGA GTCTCTTG	3082
3397	GAGACAUA A UCCCGGUC	755	GACCGGGA GGCTAGCTACAACGA TATGTCTC	3083
3403	UAAUCCCG G UCCUUAGG	756	CCTAAGGA GGCTAGCTACAACGA CGGGATTA	3084
3411	GUCCUUAG G UACUGCUA	757	TAGCAGTA GGCTAGCTACAACGA CTAAGGAC	3085
3413	CCUUAGGU A CUGCUAGU	758	ACTAGCAG GGCTAGCTACAACGA ACCTAAGG	3086
3416	UAGGUACU G CUAGUGUG	759	CACACTAG GGCTAGCTACAACGA AGTACCTA	3087
3420	UACUGCUA G UGUGGUCU	760	AGACCACA GGCTAGCTACAACGA TAGCAGTA	3088
3422	CUGCUAGU G UGGUCUGU	761	ACAGACCA GGCTAGCTACAACGA ACTAGCAG	3089
3425	CUAGUGUG G UCUGUAAU	762	ATTACAGA GGCTAGCTACAACGA CACACTAG	3090
3429	UGUGGUCU G UAAVAUCU	763	AGATATTA GGCTAGCTACAACGA AGACCACA	3091
3432	GGUCUGUA A UAUCUUAC	764	GTAAGATA GGCTAGCTACAACGA TACAGACC	3092
3434	UCUGUAAU A UCUUACUA	765	TAGTAAGA GGCTAGCTACAACGA ATTACAGA	3093
3439	AAUAUCUU A CUAAGGCC	766	GGCCTTAG GGCTAGCTACAACGA AAGATATT	3094
3445	UUACUAAG G CCUUUGGU	767	ACCAAAGG GGCTAGCTACAACGA CTTAGTAA	3095
3452	GGCCUUUG G UAUACGAC	768	GTCGTATA GGCTAGCTACAACGA CAAAGGCC	3096
3454	CCUUUGGU A UACGACCC	769	GGGTCGTA GGCTAGCTACAACGA ACCAAAGG	3097
3456	UUUGGUAU A CGACCCAG	770	CTGGGTCG GGCTAGCTACAACGA ATACCAAA	3098
3459	GGUAUACG A CCCAGAGA	771	TCTCTGGG GGCTAGCTACAACGA CGTATACC	3099
3467	ACCCAGAG A UAACACGA	772	TCGTGTTA GGCTAGCTACAACGA CTCTGGGT	3100
3470	CAGAGAUA A CACGAUGC	773	GCATCGTG GGCTAGCTACAACGA TATCTCTG	3101
3472	GAGAUAAC A CGAUGCGU	774	ACGCATCG GGCTAGCTACAACGA GTTATCTC	3102
3475	AUAACACG A UGCGUAUU	775	AATACGCA GGCTAGCTACAACGA CGTGTTAT	3102
3477	AACACGAU G CGUAUUUU	776	AAAATACG GGCTAGCTACAACGA ATCGTGTT	3104
		لــــــــــــــــــــــــــــــــــــــ	TIDIOTA MICHAGEN	2104

				2105
3479	CACGAUGC G UAUUUUAG	777	CTAAAATA GGCTAGCTACAACGA GCATCGTG	3105
3481	CGAUGCGU A UUUUAGUU	778	AACTAAAA GGCTAGCTACAACGA ACGCATCG	3106
3487	GUAUUUUA G UUUUGCAA	779	TTGCAAAA GGCTAGCTACAACGA TAAAATAC	3107
3492	UUAGUUUU G CAAAGAAG	780	CTTCTTTG GGCTAGCTACAACGA AAAACTAA	3108
3503	AAGAAGGG G UUUGGUCU	781	AGACCAAA GGCTAGCTACAACGA CCCTTCTT	3109
3508	GGGGUUUG G UCUCUGUG	782	CACAGAGA GGCTAGCTACAACGA CAAACCCC	3110
3514	UGGUCUCU G UGCCAGCU	783	AGCTGGCA GGCTAGCTACAACGA AGAGACCA	3111
3516	GUCUCUGU G CCAGCUCU	784	AGAGCTGG GGCTAGCTACAACGA ACAGAGAC	3112
3520	CUGUGCCA G CUCUAUAA	785	TTATAGAG GGCTAGCTACAACGA TGGCACAG	3113
3525	CCAGCUCU A UAAUUGUU	786	AACAATTA GGCTAGCTACAACGA AGAGCTGG	3114
3528	GCUCUAUA A UUGUUUUG	787	CAAAACAA GGCTAGCTACAACGA TATAGAGC	3115
3531	CUAUAAUU G UUUUGCUA	788	TAGCAAAA GGCTAGCTACAACGA AATTATAG	3116
3536	AUUGUUUU G CUACGAUU	789	AATCGTAG GGCTAGCTACAACGA AAAACAAT	3117
3539	GUUUUGCU A CGAUUCCA	790	TGGAATCG GGCTAGCTACAACGA AGCAAAAC	3118
3542	UUGCUACG A UUCCACUG	791	CAGTGGAA GGCTAGCTACAACGA CGTAGCAA	3119
3547	ACGAUUCC A CUGAAACU	792	AGTITCAG GGCTAGCTACAACGA GGAATCGT	3120
3553	CCACUGAA A CUCUUCGA	793	TCGAAGAG GGCTAGCTACAACGA TTCAGTGG	3121
3561	ACUCUUCG A UCAAGCUA	794	TAGCTTGA GGCTAGCTACAACGA CGAAGAGT	3122
3566	UCGAUCAA G CUACUUUA	795	TAAAGTAG GGCTAGCTACAACGA TTGATCGA	3123
3569	AUCAAGCU A CUUUAUGU	796	ACATAAAG GGCTAGCTACAACGA AGCTTGAT	3124
3574	GCUACUUU A UGUAAAUC	797	GATTTACA GGCTAGCTACAACGA AAAGTAGC	3125
3576	UACUUUAU G UAAAUCAC	798	GTGATTTA GGCTAGCTACAACGA ATAAAGTA	3126
3580	UUAUGUAA A UCACUUCA	799	TGAAGTGA GGCTAGCTACAACGA TTACATAA	3127
3583	UGUAAAUC A CUUCAUUG	800	CAATGAAG GGCTAGCTACAACGA GATTTACA	3128
3588	AUCACUUC A UUGUUUUA	801	TAAAACAA GGCTAGCTACAACGA GAAGTGAT	3129
3591	ACUUCAUU G UUUUAAAG	802	CTTTAAAA GGCTAGCTACAACGA AATGAAGT	3130
3602	UUAAAGGA A UAAACUUG	803	CAAGTTTA GGCTAGCTACAACGA TCCTTTAA	3131
3606	AGGAAUAA A CUUGAUUA	804	TAATCAAG GGCTAGCTACAACGA TTATTCCT	3132
3611	UAAACUUG A UUAUAUUG	805	CAATATAA GGCTAGCTACAACGA CAAGTTTA	3133
3614	ACUUGAUU A UAUUGUUU	806	AAACAATA GGCTAGCTACAACGA AATCAAGT	3134
3616	UUGAUUAU A UUGUUUUU	807	AAAAACAA GGCTAGCTACAACGA ATAATCAA	3135
3619	AUUAUAUU G UUUUUUUA	808	TAAAAAA GGCTAGCTACAACGA AATATAAT	3136
3627	GUUUUUUU A UUUGGCAU	809	ATGCCAAA GGCTAGCTACAACGA AAAAAAAC	3137
<b>———</b>	UNIVACIO G CAUAACUG	810	CAGTTATG GGCTAGCTACAACGA CAAATAAA	3138
3632	UAUUUGGC A UAACUGUG	811	CACAGTTA GGCTAGCTACAACGA GCCAAATA	3139
3634	UUGGCAUA A CUGUGAUU	812	AATCACAG GGCTAGCTACAACGA TATGCCAA	3140
3637	GCAUAACU G UGAUUCUU	813	AAGAATCA GGCTAGCTACAACGA AGTTATGC	3141
3640	UAACUGUG A UUCUUUUA	814	TAAAAGAA GGCTAGCTACAACGA CACAGTTA	3142
3643		815	AGTAATTG GGCTAGCTACAACGA CCTAAAAG	3143
3654	CUUUUAGG A CAAUUACU	816	TACAGTAA GGCTAGCTACAACGA TGTCCTAA	3144
3657	UUAGGACA A UUACUGUA	817	GTGTACAG GGCTAGCTACAACGA AATTGTCC	3145
3660	GGACAAUU A CUGUACAC	<del></del>	AATGTGTA GGCTAGCTACAACGA AGTAATTG	3146
3663		818	TTAATGTG GGCTAGCTACAACGA ACAGTAAT	3147
3665			CCTTAATG GGCTAGCTACAACGA GTACAGTA	3148
3667		820	CACCITAA GGCTAGCTACAACGA GTGTACAG	3149
3669		821	GACATACA GGCTAGCTACAACGA CTTAATGT	3150
3675		822	CTGACATA GGCTAGCTACAACGA ACCTTAAT	3151
3677		823	ATCTGACA GGCTAGCTACAACGA ACACCTTA	3152
3679			ATATCTGA GGCTAGCTACAACGA ATACACCT	3153
3681				3154
3686		826	TATGAATA GGCTAGCTACAACGA CTGACATA	3155
3688			AATATGAA GGCTAGCTACAACGA ATCTGACA	3156
3692	AGAUAUUC A UAUUGACC	828	GGTCAATA GGCTAGCTACAACGA GAATATCT	1 3130

3698   UQUADURA   UUGACCCA   329   TEGGTCA GGCTAGCTACAACGA ATGAATATA   3159				v <del>alenta de la composição de la composiç</del>	
3706	3694	AUAUUCAU A UUGACCCA	829	TGGGTCAA GGCTAGCTACAACGA ATGAATAT	3157
3706   ACCCAAAUG   GUGUANUN   832   ATATTACA GGCTAGCTACAACGA ATTTGGGT   3160   3708   CCAAAUGU   GUANUNUCCA   834   CTGGAATTA GGCTAGCTACAACGA ACATTTGG   3161   3711   ANUGUGUA A UNUCCAGUU   835   AACTGGAA GGCTAGCTACAACGA ATTACACAT   3162   3713   USUGUANU A UUCCAGUU   836   AACTGGAA GGCTAGCTACAACGA ATTACACAC   3163   3719   AUAUUCCA   GUUUCUCU   836   AACTGGAA GGCTAGCTACAACGA ATTACACAC   3163   3719   UUUCUCUC   CADAAGUA   837   TACTTATG GGCTAGCTACAACGA AGAGAAAA   3165   3720   UUUCUCUC   AUAGUANU   838   ATTACTTA GGCTAGCTACAACGA CGCAGGAAA   3165   3731   CAUAAGUA   AUANUANA   839   TITATTA GGCTAGCTACAACGA CGCAGGAA   3167   3731   CAUAAGUA   AUANUANA   840   TATTTTAA GGCTAGCTACAACGA TATTACTCA   3169   3743   CAGANAA   GUANUANA   841   TAAGTATA GGCTAGCTACAACGA TATTATTA   3169   3745   AUUAAANA   UACUUAAA   842   TITAAGTA GGCTAGCTACAACGA TATTTATA   3170   3745   AUUAAANA   AUAUAAA   843   TITTTAAA GGCTAGCTACAACGA TATTTATA   3170   3747   UAAAANAU   AUAUAAAA   843   TITTTAAA GGCTAGCTACAACGA TATTTATA   3171   3759   AAAAAUUA   AUAUAAAA   844   ACTATTAA GGCTAGCTACAACGA ATATTTTA   3172   3762   AUUAAAA   AUAUAAAA   845   TAAAACTA   GGCTAGCTACAACGA ATATTTTA   3173   3762   AUGAUAAA   AUAUAAAA   847   TACCACGA GGCTAGCTACAACGA ATATTTTA   3173   3763   AUAGUUU   AUCUGGUA   847   TACCACGA GGCTAGCTACAACGA TATTAATT   3173   3764   AUGAUUU   AUCUGGUA   847   TACCACGA GGCTAGCTACAACGA TATTAATT   3173   3767   AUGUGUU   AUCUGGUA   847   TACCACGA GGCTAGCTACAACGA TATTAATT   3174   3778   AUCUGGGU   ACAAAUAA   848   TATTGTA GGCTAGCTACAACGA TATTATT   3174   3779   GGGUACAA   AUAACAGU   850   ACTGTTTA GGCTACAACGA ACCAGA TATTATT   3173   3779   AUGUUU   AUCUGGUA   847   TACCACGA GGCTAGCTACAACGA TATTATT   3174   3779   AUCUGGGU   ACAAAUAA   849   TITATTG GGCTAGCTACAACGA TATTATTT   3175   3779   AUCUGGGU   ACAAAUAA   849   TITATTG GGCTAGCTACAACGA TATTATTT   3174   3779   GGGUACAA   AUAACAGU   850   ACTGTTTA GGCTAGCTACAACGA TATTATTT   3179   3780   AUCUAGAA   AUCUAGAA   849   TITATTG GGCTAGCTACAACGA TATTATTT   3179   3781   AUCUAGAA	3698	UCAUAUUG A CCCAAAUG	830	CATTIGGG GGCTAGCTACAACGA CAATATGA	3158
3798   CCANAUGU G UANUAUUC   833   GARTATTA GGCTAGCTACAACGA ACATTTGG   3161	3704	UGACCCAA A UGUGUAAU	831	ATTACACA GGCTAGCTACAACGA TTGGGTCA	3159
3711   ANUGUGUA A UNUUCCAG   834   CTEGARTA GGCTAGCTACACGA TACACATT   3162   3713   UGUGUANU A UUCCAGUU   835   AACTIGGAA GGCTAGCTACACAGA ATTACACA   3163   31719   ANUUCCAG UUUUCUCU   836   AGGARAA GGCTAGCTACACGA TGGATATA   3164   3728   UUUUCUCU G CAURAGUA   836   AGGARAA GGCTAGCTACACAGA AGGAGAAA   3165   3730   UUCUCUGC A URAGUAN   838   ATTACTTA GGCTAGCTACACGA AGGAGAAA   3165   3737   CAURAGUA   UUCUCUGC A URAGUAN   838   ATTACTTA GGCTAGCTACACGA AGGAGAAA   3165   3737   CAURAGUA   UUCUCUGC A URAGUAN   840   TATTTTA GGCTAGCTACACGA TATTTATG   3167   3737   CAURAGUA   UUANAAUA   840   TATTTTA GGCTAGCTACACGA TATTTATG   3169   3745   AUUANAA   UUCUUNAA   841   TATGTATA GGCTAGCTACACGA TATTTATT   3170   3745   AUUANAA   UUCUUNAA   842   TTTAAGTA GGCTAGCTACACGA TATTTTAT   3170   3755   ACUANAGU   AUUANAA   844   TATTTAA GGCTAGCTACACGA TATTTTAT   3171   3175   AUUANAA   UUANAGAU   844   ACTATTAA GGCTAGCTACACGA TATTTTAT   3172   31752   AAUANAU   AUUANUA   845   TAAAACTA GGCTAGCTACACGA TATTTATT   3173   31762   AAUUANA   AUUANUA   845   TAAAACTA GGCTAGCTACACGA TATTTATT   3173   31762   AAUUANA   AUUANUA   846   AGATANAA   GGCTAGCTACACGA TATTTATT   3173   31762   AAUUANA   AUUANUA   847   TACCCACA GGCTAGCTACACGA TATTTATT   3173   31753   AUUANUA   AUUANUA   848   TATTTGTA GGCTAGCTACACGA ACACCA TATTATT   3173   31753   AUUANUA   AUUANUA   BAU   BAU   TATTTTTA GGCTAGCTACACGA ACACCACTA   3177   31779   GGGUACAA   AUAACACGU   850   ACTGTTTA GGCTAGCTACACGA ACACCACTA   3177   3179   GGGUACAA   AUAACACGU   850   ACTGTTTA GGCTAGCTACACGA ACCCACTA   3177   3179   GGGUACAA   AUAACACGU   851   AGGCACTA GGCTAGCTACACGA ACCCACTA   3178   3179   AUAACAGU   GUCCUGAA   852   TTCTGTAG GGCTAGCTACACGA ACCCACTA   3178   3179   GGGUACAA   AUAACACGU   851   AGGCACTA GGCTAGCTACACGA ACCCACTA   3177   3179   GGCUACCACA   ACAGGAA   852   TTCTGTAG GGCTAGCTACACGA ACCCACTA   3178   3179   GGCUACCACA   ACAGGAA   852   TTCTGTAG GGCTAGCTACACGA ACCCACTA   3178   3189   ACAAGUU   AUGAUCACA   ACAGGAA   852   TTCTGTAG GGCTAGCTACACGA ACCCACTA   3189   318	3706	ACCCAAAU G UGUAAUAU	832	ATATTACA GGCTAGCTACAACGA ATTTGGGT	3160
3713   UGUGUANU A UUCCAGUU   835   AACTGGAA GGCTAGCTACACGA ATTACACA   3163   3719   AUAUUCCUG G UUUUCUU G GAUAGGUA   837   AACTTGTAG GGCTAGCTACACGA TGGAATAT   3164   3178   UUUUCUUG G GUAUAGGUA   837   TACTTTATG GGCTAGCTACACGA CAGGAGAA   3165   3179   UUCUCUG G AUAGGUAA   838   ATTACTTA GGCTAGCTACACGA CAGGAGAA   3165   3179   UUCUCUG C A UAAGUAAU   838   ATTACTTA GGCTAGCTACACGA CAGGAGAA   3166   3174   CUGCAUAA G UAAGUAA   839   TTAATTA GGCTAGCTACACGA CAGGAGAA   3167   3171   CAUAAGUA A UAUAAAUA   840   TATTTTAA GGCTAGCTACAACGA TTATATTA   3169   3743   UAAUAAAU A UACUUAA   841   TAAGTATA GGCTAGCTACAACGA TTATATTA   3169   3745   AUUAAAAU A UACUUAAA   842   TTTAAGTA GGCTAGCTACAACGA ATTTTAAT   3170   3747   UAAAAUAA A UAUACUUA   844   ACTATTAA GGCTAGCTACAACGA ATTTTAAT   3171   3175   AACUUAAAA A UUAAUAGU   844   ACTATTAA GGCTAGCTACAACGA ATATTTTA   3173   3175   AAAAAUAA A UAUAUUAUCU   846   AGATAAAA GGCTAGCTACAACGA TTATAATT   3173   3176   AAUUAAUA G UUUUAUCU   846   AGATAAAA GGCTAGCTACAACGA TATTTATT   3173   3173   UAUCUGG G UUCAAAUA   848   TATTTGTA GGCTAGCTACAACGA TATTTATT   3173   3173   UAUCUGG G UACAAUAA   848   TATTTGTA GGCTAGCTACAACGA TATTTATT   3173   3173   UAUCUGG G UACAAUAA   848   TATTTGTA GGCTAGCTACAACGA TATTTATT   3173   3173   UAUCUGG G UACAAUAA   848   TATTTGTA GGCTAGCTACAACGA CAGATAA   3176   3177   AUCUGGGU A CAAAUAAA   849   TTTATTG GGCTAGCTACAACGA CAGATAA   3176   3179   AUCUGGGU A CAAAUAAA   849   TTTATTG GGCTAGCTACAACGA CAGATAA   3177   3178   AUAAAACAGU G CCUGAACU   851   AGGCACTG GGCTAGCTACAACGA TTATTTATT   3180   3178   AAAAACAGU G CCUGAACU   851   AGGCACTG GGCTAGCTACAACGA TTATTTATT   3180   3178   AAAAACAGU G UCCUGAA   852   TTCAGGCA GGCTAGCTACAACGA TTTTTATT   3180   3178   AUAAAACAGU G UCCUGAACU   853   AGTTCAG GGCTAGCTACAACGA TTTTTATT   3180   3178   UAGAACAGU G UUCACACA   855   TTCTTTAG GGCTAGCTACAACGA TTTTTATT   3180   3181   CAAGGGAA A CUAGUACA   855   TTCTTTAG GGCTAGCTACAACGA TCTAGCACA   3183   3181   CAAGGGAA A CUACUACA   865   TTCTTTAG GGCTAGCTACAACGA TCTAGCACA   3183   3181	3708	CCAAAUGU G UAAUAUUC	833	GAATATTA GGCTAGCTACAACGA ACATTTGG	3161
3719 AUAUUCCA G UUUUCUCU 836 AGAGAAA GCTAGCTACAACGA TGGAATAT 3164 3728 UUUUCUCUG CAUAAGUA 837 TACTTATG GGCTAGCTACAACGA AGAGAAA 3165 3730 UUUCUCUGA CAUAAGUAA 837 TACTTATG GGCTAGCTACAACGA AGAGAAA 3165 3731 CAUACUCUGA CAUAAGUAA 839 TACTTATG GGCTAGCTACAACGA CACAGAAA 3166 3731 CAUACUCAA G UAAUUAAA 839 TTTAATTA GGCTAGCTACAACGA TTATGCAG 3167 3731 CAUACUAA A UUAAAAUA 840 TATTTATA GGCTAGCTACAACGA TTATTATG 3168 3734 UAUAAAA UAUACUUA 841 TAGTATA GGCTAGCTACAACGA TTATTATG 3169 3745 UAUAAAA UAUACUUA 841 TAGTATA GGCTAGCTACAACGA TTATTATA 3170 3747 UAAAAUAU A UACUUAAA 842 TTTAAGTA GGCTAGCTACAACGA ATTATTTA 3170 3747 UAAAAUAU A UAUUUUA 844 ACTATTAA GGCTAGCTACAACGA ATTATTTA 3172 3755 ACUAAAAU A UAGUUUA 845 TAAAACTA GGCTAGCTACAACGA ATTATTTT 3173 3762 AAUUAAAA U AUGUUUA 845 TAAAACTA GGCTAGCTACAACGA TATTAATT 3173 3763 AUAAUAUA G UUUUGUU 846 AGATAAAA GGCTAGCTACAACGA TATTAATT 3173 3764 AUAGUUU A UCUGGGUA 847 TACCCACA GGCTAGCTACAACGA TATTAATT 3173 3775 AUCUGGGU A CAAAUAAA 849 TATTTGTA GGCTAGCTACAACGA AAAACTAT 3175 3778 AUCUGGGU A CAAAUAAA 849 TATTTGTA GGCTAGCTACAACGA ACCCCAGAT 3177 3779 GGGUACAA UAAACAGU 850 ACTGTTTA GGCTAGCTACAACGA TATTATT 3173 3786 AUAUAACA GUGCCUGAA 849 TTATTTTT GGCTAGCTACAACGA TATTATTT 3173 3788 AUAAACAGU G CCUGAACU 851 AGGCATG GGCTAGCTACAACGA TATTTATT 3180 3788 UAAACAGU G CCUGAACU 851 AGGCATG GGCTAGCTACAACGA TATTTATT 3180 3788 UAAACAGU G CCUGAACU 853 AGGCATG GGCTAGCTACAACGA TATTTATT 3180 3788 UAAACAGU G CCUGAACU 854 TTCAGGCA GGCTAGCTACAACGA TTCTTCTC 3178 3890 ACUACUAC A CAAGGAGA 855 TCTGTGA GGCTAGCTACAACGA TCTGTTCT 3180 3891 UAAACAGU G CCUGAACU 854 TGAACGA GGCTAGCTACAACGA TTGTTCTC 3180 3892 ACUAGUUC A CAGACAG 855 TCTGTCTA GGCTAGCTACAACGA TCTGTTCT 3180 3892 ACUAGUUC A CAGACAA 855 TCTGTGA GGCTAGCTACAACGA TTGTTCTC 3180 3891 UAAACAGU G CCUGAACU 856 TGAACTAG GGCTAGCTACAACGA TTGTTCTC 3180 3892 ACUAGUUC A CAGACAA 856 TTTCTCTG GGCTAGCTACAACGA TTGTTCTT 3180 3892 ACUAGUUC A CAGACAA 856 TTTCTCTG GGCTAGCTACAACGA TTGTTCTT 3180 3893 UUCACAGA A CUACAGAA 856 TTTCTCTG GGCTAGCTACAACGA ATGTTTTA 3191 3893 AAUUCUAA A UUCACAGA 856 TTTCT	3711	AAUGUGUA A UAUUCCAG	834	CTGGAATA GGCTAGCTACAACGA TACACATT	3162
3728 UUUUCUCU G CAUANGUA 837 TACTTATG GGCTAGCTACAACGA AGAGAAA 3165 3730 UUCUCUCUC A UAAGUAAU 838 ATTACTTA GGCTAGCTACAACGA GAGAGAA 3166 37314 CUGCUUG A UAAGUAAU 839 TTACTTA GGCTAGCTACAACGA CAGAGAA 3166 3737 CAUAAGUA A UUAAAAUA 840 TATTTAATTA GGCTAGCTACAACGA TATGCAG 3167 3741 UAAUAAAAU A UACUUAAA 841 TAAGTATA GGCTAGCTACAACGA TACTTATG 3168 3743 UAAUAAAUA A UAUCUAAAA 842 TTAAGTATA GGCTAGCTACAACGA ATTATATA 3170 3745 AUUAAAAU A UACUUAAAA 841 TTAAGTATA GGCTAGCTACAACGA ATTATTATA 3170 3747 UAAAAUAU A CUUAAAAA 843 TTTTAAGTA GGCTAGCTACAACGA ATTATTAT 3171 3745 AUUAAAAU A UUAAUAGU 844 ACTATTAA GGCTAGCTACAACGA ATTATTAT 3171 3755 ACCUUAAAA A UUAAUAGU 844 ACTATTAA GGCTAGCTACAACGA ATTATTAT 3171 3767 AUGUUUU A UGUGGGUA 846 AGATAAAA GGCTAGCTACAACGA TATTTATT 3173 3767 AUGUUUU A UCUGGGUA 846 AGATAAAA GGCTAGCTACAACGA TATTAATT 3174 3767 AUGUGUUU A UCUGGGUA 847 TACCCAGA GGCTAGCTACAACGA AAACTAT 3175 3773 UUAUCUGG G UACAAAUA 848 TATTTGTA GGCTAGCTACAACGA AAACTAT 3175 3775 AUCUGGGU A CAAAUAAA 849 TTTATTTG GGCTAGCTACAACGA ACCAGATAA 3176 3778 AUCUGGGU A CAAAUAAA 849 TTTATTGT GGCTAGCTACAACGA ACCAGAT 3177 3789 AGGGIACAA A UAAACAGU 850 ACTGTTTA GGCTAGCTACAACGA TATTATTT 3179 3780 ACAAAUAA A CAGUGCCU 851 AGGCACTG GGCTACAACGA TATTTATT 3179 3788 ACAAAUAA A CAGUGCCU 851 AGGCACTG GGCTAGCTACAACGA TATTTATTT 3180 3788 AAAACAGU G CCUGAACU 853 AGTTCAGG GGCTAGCTACAACGA TTATTTTT 3180 3788 AAAACAGU G CCUGAACU 853 AGTTCAG GGCTAGCTACAACGA TTATTTTT 3180 3789 CUGAACUA G UUCACAGA 855 TCTGTGA GGCTACAACGA TTATTTATT 3181 3799 GUGCCUGA A CUACUAGA 855 TCTGTGA GGCTACAACGA TTATTTAT 3181 3802 ACUAGUUC A CAGACAAG 855 TCTGTGA GGCTACAACGA TTATTTAT 3181 3803 ACUAGUUC A CAGACAAG 855 TCTGTGA GGCTACAACGA TCAGACGA TTATTATT 3180 3804 ACUAGUUC A UGUACAGA 855 TCTGTGA GGCTACAACGA AGAAGTAT 3183 3805 ACUAGUUC A UGUACAGA 856 TCTGTCTG GGCTACCTACAACGA GAACTAGT 3183 3806 GUUCACAGA A CAAGGGAA 857 TTCCCTTG GGCTACCTACAACGA TTATTCAT 3189 3807 ACUACUUC A UGUACAGA 856 TCTGTGA GGCTACAACGA TTATTCAT 3189 3808 CUUCACAGA A CUAGUUUG 863 AGAGTAG GGCTACAACGA AGAGTTT 3189 3809 AUGACAAU G UGAACAAU 866 G	3713	UGUGUAAU A UUCCAGUU	835	AACTGGAA GGCTAGCTACAACGA ATTACACA	3163
3730 UUCUCUGC A UAAGUAAU 838 ATTACTTA GGCTAGCTACAACGA GCAGAGAA 3166 3734 CUGCAUAA G UAAUUAAA 839 TTTAATTA GGCTAGCTACAACGA TATGCAG 3167 3737 CAUAAGUA A UAUAAAGUA 840 TATTTATA GGCTAGCTACAACGA TATGCAG 3167 3743 UAAUAAAA A UAUAACUUA 841 TAAGTATA GGCTAGCTACAACGA TATTATTA 3169 3745 AUUAAAAU A UACUUAAA 842 TTTAAGTA GGCTAGCTACAACGA TATTATTA 3170 3747 UAAAAUAU A CUUAAAAA 842 TTTAAGTA GGCTAGCTACAACGA ATTTATA 3171 3755 ACUUAAAA A UUAAUAGU 844 ACTATTAA GGCTAGCTACAACGA ATTTATA 3171 3755 ACUUAAAA A UUAAUAGU 845 TAAAACTA GGCTAGCTACAACGA TATTTATA 3173 3752 AAUAAUAUA A UAGUUUUAU 845 TAAAACTA GGCTAGCTACAACGA TATTTATA 3173 3762 AAUUAAUAUA GUUUUACU 846 ACATAAA GGCTAGCTACAACGA TATTTATA 3173 3763 AUUAAAUAU A UCUGGGUA 847 TACCCAGA GGCTAGCTACAACGA TATTATT 3174 3767 AUAUGUUG G UACAAAUA 848 TATTGTTA GGCTAGCTACAACGA TATATTT 3174 3779 AUCUCGGU A CAAAUAA 849 TATTATTA GGCTAGCTACAACGA CAGATAA 3176 3779 AUCUCGGU A CAAAUAA 849 TATTATTA GGCTAGCTACAACGA CAGACGAT 3177 3779 GGGUACAA UAAACAGU 850 ACTGTTTA GGCTAGCTACAACGA TATTTTTT 3179 3786 AAUAAACA G UGCCUGAA 851 AGGCACTG GGCTAGCTACAACGA TATTTTTT 3180 3788 AAAAACAC G UGCCUGAA 851 AGGCACTG GGCTAGCTACAACGA TATTTTTT 3180 3788 UAAACAGU G CCUGAACU 853 AGTTCAGG GGCTAGCTACAACGA TATTTTTT 3180 3788 UAAACAGU G UCCCAGAA 852 TTCAGGGCA GGCTAGCTACAACGA TATTTTTT 3180 3794 CUGAACUA G UUCACAGA 855 TCTGTGAA GGCTAGCTACAACGA TCTTTAT 3180 3806 GUUCACAG A CAAGGGAA 855 TCTGTGAA GGCTAGCTACAACGA TCTTTATT 3180 3806 GUUCACAG A CAAGGGAA 856 CTTGTCTG GGCTAGCTACAACGA TCTTTAT 3181 3807 ACUAGUUC A CAGACAAG 856 CTTGTCTG GGCTAGCTACAACGA TAGTTCAG 3183 3812 CACUAGUUC A CAGACAAG 856 CTTGTCTG GGCTAGCTACAACGA TAGTTCAG 3183 3813 CACUCUAU G UUAAAAAC 867 TTCCCTTG GGCTAGCTACAACGA TAGTTCAG 3183 3814 CACUAGUU A UGUAAAAA 859 TTTTTACA GGCTAGCTACAACGA TAGTAGTA 3184 3823 AUGUAAAA A CUUCUAUG 861 CATAGTAG GGCTAGCTACAACGA TAGTAGTA 3189 3823 AUGUAAAA A CUUCUAUG 861 CATAGTAG GGCTAGCTACAACGA TAGTAGTA 3189 3823 AUGUAAAA A UACUUUA 862 ATTCTTGA GGCTAGCTACAACGA TAGAAGA TAGAAGA TAGAAGA TAGAAGA TAGAAGA A CUUCUAUG 863 CATAGTAG GGCTAGCTACAACGA ATTAGAAGA 3189 3	3719	AUAUUCCA G UUUUCUCU	836	AGAGAAAA GGCTAGCTACAACGA TGGAATAT	3164
3734 CUGCAUAA G UAAUUAAA 839 TITAATTA GGCTAGCTACAACGA TIATGCAG 3167 3737 CAUAAGUA A UUAAAAUA 840 TATTTAA GGCTAGCTACAACGA TIATGCAG 3168 3743 UAAUUAAA UAAUUAAA 841 TAAGTATA GGCTAGCTACAACGA TITAATTA 3169 3745 AUUAAAAU A UACUUAAA 842 TITAAGTAT GGCTAGCTACAACGA ATTTTAAT 3170 3747 UAAAAUAU A CUUAAAAA 843 TITTTAAG GGCTAGCTACAACGA ATTTTAAT 3170 3747 UAAAAUAU A UUAAUAGU 844 ACTATAAA GGCTAGCTAACACGA ATTTTAAT 3171 3759 AAAAAUUA A UAAUAUGU 846 ACATAAAA GGCTAGCTACAACGA TITTAAGT 3172 3759 AAAAAUUA A UAGUUUUA 845 TAAAACTA GGCTAGCTACAACGA TATTTATT 3173 3767 AUAGUUUA UCUGGGUA 846 ACATAAAA GGCTAGCTACAACGA TATTAATT 3174 3767 AUAGUUUA UCUGGGUA 847 TACCCAGA GGCTAGCTACAACGA TATTAATT 3174 3773 UUAUCUGG G UACAAAUA 848 TATTTGTA GGCTAGCTACAACGA AAACTAT 3175 3773 UUAUCUGG G UACAAAUA 849 TITTATTG GGCTAGCTACAACGA AAACTAT 3175 3775 AUCUGGGUA CAAAUAAA 849 TITTATTG GGCTAGCTACAACGA ACCAGAT 3177 3779 AGGUACAA UAAACAGU 850 ACTGTTTA GGCTAGCTACAACGA TATTTATT 3179 3788 AUAAACAGU G CUGCUGAA 851 AGGCACTG GGCTAGCTACAACGA TATTTATT 3180 3788 UAAACAGU G CCUGAACU 851 AGGCACTG GGCTAGCTACAACGA TATTTATT 3180 3788 UAAACAGU G CCUGAACU 853 AGTTCAGG GGCTAGCTACAACGA TATTTATT 3180 3799 GUGAACUA G UUCACAGA 852 TTCAGGCA GGCTAGCTACAACGA TATTTATT 3180 3799 CUGAACUA G UUCACAGA 855 TCTGTGAA GGCTAGCTACAACGA TCGTTTAT 3181 3806 GUUCACAG A CUAGUUCA 854 TAAACTAG GGCTAGCTACAACGA TCGTTTA 3181 3815 CAAGGGAA CUAGUUCA 855 TCTGTGAA GGCTAGCTACAACGA TCGTTCAG 3820 ACUAGUUC A CAGACAAG 855 TCTGTGAA GGCTAGCTACAACGA TCGTTCAG 3821 AAACUUCU A UGUAAAAA 859 TTTTTACC GGCTAGCTACAACGA TCGTGCAC 3182 3821 AAACUUCU A UGUAAAAA 859 TTTTTACC 3822 AUGAGUAC A UAAAAAUA 860 GATTTTTA GGCTAGCTACAACGA TTTTCCCTTG 3186 3822 ACUUCUAU G UAAAAAUA 860 GATTTTTA GGCTAGCTACAACGA TTTTCCCTTG 3186 3822 ACUUCUAU G UAAAAAUA 860 GATTTTTA GGCTAGCTACAACGA ATTGTCAG 3189 3823 ACUUCUAU G UAAAAAUA 860 GATTTTTA GGCTAGCTACAACGA ATTGTCAG 3189 3824 AUAGACU A UGUAAAAA 869 TTTTTACA GGCTAGCTACAACGA ATTGTCAT 3189 3825 ACUUCUAU G UAAAAAUA 860 GATTTTTA GGCTAGCTACAACGA ATTGCATT 3191 3828 AUGUAAAA A UCACUAGU 861 CATAGTAG GGCTAGCTACAACGA ATT	3728	UUUUCUCU G CAUAAGUA	837	TACTTATG GGCTAGCTACAACGA AGAGAAAA	3165
3737 CAUAAGUA A UUAAAAUA 840 TATTTTAA GGCTAGCTACAACGA TACTTATG 3168 3743 UAAUAAAA UAUACUUA 841 TAAGTATA GGCTAGCTACAACGA TATTTAATA 3169 3745 AUUAAAAUA UAUCUUAA 842 TTAAGTATA GGCTAGCTACAACGA ATTTTAAT 3170 3747 UAAAAUAUA CUUAAAAA 843 TTTTAAGTA GGCTAGCTACAACGA ATTTTAAT 3171 3755 ACUUAAAAA A UUAAUAAGU 844 ACTATTAA GGCTAGCTAACAACGA ATTTTAAT 3172 3755 ACUUAAAAA A UUAAUAGU 844 ACTATTAA GGCTAGCTAACACGA ATTTTAAGT 3172 3756 ACUUAAAAA A UUAAUAGU 846 AGATAAAA GGCTAGCTACAACGA TATTTTA 3173 3762 AAUUAAUA G UUUUUUCU 846 AGATAAAA GGCTAGCTACAACGA TATTTATT 3174 3767 AUAGUUUU A UCUGGGUA 847 TACCCAGA GGCTAGCTACAACGA TATTATT 3174 3768 AUUAAUA G UUUUAUCU 846 AGATAAAA GGCTAGCTACAACGA TATTAATT 3175 3773 UUUCUGG U ACAAAUAA 849 TTTATTTG GGCTAGCTACAACGA CAGATTAA 3175 3775 AUCUGGGU A CAAAUAAA 849 TTTATTTG GGCTAGCTACAACGA CCAGATTAA 3176 3775 AUCUGGGU A CAAAUAAA 849 TTTATTTG GGCTAGCTACAACGA ACCCAGAT 3177 3778 GGGUACAA A UAAACAGU 850 ACTGTTTA GGCTAGCTACAACGA TATTTTTT 3180 3788 CAAAAUAA A CAGUGCCU 851 AGGCACTG GGCTAGCTACAACGA TATTTTTT 3180 3788 AAUAAACA G UGCCUGAA 852 TTCAGGCA GGCTAGCTACAACGA TCTTTATC 3179 3794 GUGCCUGA A CUAGUUCA 851 AGGTCAG GGCTAGCTACAACGA TCTTTATT 3180 3798 UGAACCAU G CUGAACU 853 AGTTCAGG GGCTAGCTACAACGA TCGTTTAT 3181 3798 CUGAACUA G UUCACAGA 855 TCTGTGAA GGCTAGCTACAACGA TCGTTTAT 3181 3800 ACUAGUUC A CAGACCAAG 856 CTTGTTGA GGCTAGCTACAACGA TCGTCAGA 3801 ACUUCAUG G UUCACAGA 855 TCTGTGAA GGCTAGCTACAACGA TCGTGAAC 3821 ACUUCAUA G UUCACAGA 856 CTTGTCTG GGCTAGCTACAACGA TCGTGAAC 3822 ACUAGUUC A CAGACGAAB 856 CTTGTCTG GGCTAGCTACAACGA TCGTGAAC 3823 ACUUCAAGA A CAAGGGAA 856 CTTGTCTG GGCTAGCTACAACGA TCGTGAAC 3823 ACUUCAGA A CAAGGGAA 856 CTTGTCTG GGCTAGCTACAACGA TCGTGAAC 3823 AGUUCACAG A CAAGGGAA 856 CTTGTCTG GGCTAGCTACAACGA TCGTGAAC 3824 AAGACUCA GUAAAAUC 860 GTTTTTA GGCTAGCTACAACGA TTGTCAG 3823 AUUCACAGA CAAGGGAA 856 CTTGTCTG GGCTAGCTACAACGA TTGTGAAC 3824 AAGCUUCA A UUGUAAAA 869 ATTTTAA GGCTAGCTACAACGA ATTTTAA 3189 3825 AUUCUCAGA A CUAGAGUA 866 CTTGTCTG GGCTAGCTACAACGA ATTTTAA 3191 3826 GUGAAACU A UGUAAAA 866 GTTTTTAA GGCTAGCTACAACGA A	3730	UUCUCUGC A UAAGUAAU	838	ATTACTTA GGCTAGCTACAACGA GCAGAGAA	3166
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3747	3743	UAAUUAAA A UAUACUUA	841	TAAGTATA GGCTAGCTACAACGA TTTAATTA	3169
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3762   AAUUAAUA G UUUUAUCU   846   AGATAAAA GGCTAGCTACAACGA TATTAATT   3174   3176   AUAGUUUU A UCUGGGUA   847   TACCCAGA GGCTAGCTACAACGA AAAACTAT   3175   3173   UUAUCUGG G UACAAAUA   848   TATTTGTA GGCTAGCTACAACGA CACAGATAA   3176   3175   AUCUGAGU A CAAAUAAA   849   TTTATTGT GGCTAGCTACAACGA CACAGATAA   3177   3179   GGGUACAA A UAAACAGU   850   ACTGTTTA GGCTAGCTACAACGA TGTACCC   3178   3178   AAUAAACA G UGCCUGAA   852   TTCAGGCA GGCTAGCTACAACGA TTGTACCC   3178   3178   AAUAAACA G UGCCUGAA   852   TTCAGGCA GGCTAGCTACAACGA TTGTTTTT   3180   3178   UAAACAGU G CUCUGAAC   853   AGTCCAGG GGCTAGCTACAACGA TTGTTTTT   3181   3179   GUGCCUGA A CUAGUUCA   854   TGAACTAG GGCTAGCTACAACGA TCTGTTTA   3181   3179   GUGCCUGA A CUAGUUCA   854   TGAACTAG GGCTAGCTACAACGA TCAGGCAC   3182   3182   ACUAGUUCA   655   TCTGTGAA GGCTAGCTACAACGA TCAGGCAC   3182   3180   ACUAGUUCA   655   TCTGTGAA GGCTAGCTACAACGA TAGTTCAG   3183   3180   ACUAGUUCA   646   655   TCTGTGA GGCTAGCTACAACGA TAGTTCAG   3184   3180   GUUCACAGA   655   TCTGTGA GGCTAGCTACAACGA TAGTTCAG   3184   3185   CAAGGGAA   CUUCUAUG   858   CATAGAGA GGCTAGCTACAACGA TCACGCAC   3185   3185   CAAGGGAA   CUUCUAUG   858   CATAGAGA GGCTAGCTACAACGA TCCCTTG   3186   3185   CAAGGGAA   CUUCUAUG   858   CATAGAGA GGCTAGCTACAACGA TCCCTTG   3186   3182   AAACUUCU   GUAAAAAU   860   GATTTTTA GGCTAGCTACAACGA TTCCCTTG   3186   3182   AAAUAUCU   GUAAAAAU   860   GATTTTTA GGCTAGCTACAACGA TTTACATTT   3189   3183   AAAAACU   GUAAAAAU   861   CATAGTGA GGCTAGCTACAACGA ATAGAAGT   3189   3183   AAAAAUC   A UAGUUUUG   861   CATAGTGA GGCTAGCTACAACGA ATAGAAGT   3189   3183   AAAUACCU   A UGAUAUG   861   CATAGTGA GGCTAGCTACAACGA ATAGAAGT   3191   3183   AAAAAUC   A UAGUUUUG   862   AATCATAG GGCTAGCTACAACGA ATAGAAGT   3191   3183   AAAAAUC   A UGAUUUG   864   TCTGAAAGA GGCTAGCTACAACGA ATAGAAGT   3191   3183   AAAAAUC   A UGAUUUG   865   CATAGCAA GGCTAGCTACAACGA ATAGAAGT   3193   AUGUAAAU   A UGAUUGUA   866   TAGTTCAA GGCTAGCTACAACGA ATAGAAGT   3193   3184   AUUGUAAA   A UCACUAUG   867   ACACCCTA GGCTAGCT	3755	ACUUAAAA A UUAAUAGU	844	ACTATTAA GGCTAGCTACAACGA TTTTAAGT	3172
3767 AUAGUUUU A UCUGGGUA 847 TACCCAGA GGCTAGCTACAACGA AAAACTAT 3175 3773 UUAUCUGG G UACAAAUA 848 TATTATTA GGCTAGCTACAACGA ACCAGATA 3176 3775 AUCUGGGU A CAAAUAAA 849 TATTATTTG GGCTAGCTACAACGA ACCAGAT 3177 3779 GGGUACAA A UAAACAGU 850 ACTGTTTA GGCTAGCTACAACGA TCGTACCACGA 3178 3783 ACAAAUAA A CAGUGCCU 851 AGGCACTG GGCTAGCTACAACGA TTGTTACCC 3178 3786 AAUAAACA G UGCCUGAA 852 TTCAGGCA GGCTAGCTACAACGA TTGTTATT 3180 3788 UAAACAGU G CCUGAACU 853 AGTTCAGG GGCTAGCTACAACGA TGTTTATT 3180 3798 GUGCCUGA A CUAGUUCA 854 TCAACTAG GGCTAGCTACAACGA TCGTTTA 3181 3799 CUGAACUA G UUCACAGA 855 TCTGTGAA GGCTAGCTACAACGA TCAGTCACA 3798 CUGAACUA G UUCACAGA 855 TCTGTGAA GGCTAGCTACAACGA TCAGTCACA 3798 CUGAACUA G UUCACAGA 856 CTTGTCAG GGCTAGCTACAACGA TAGTTCAG 3183 3802 ACUAGUUC A CAGACAAG 856 CTTGTCAG GGCTAGCTACAACGA TCAGTACA 3806 GUUCACAGA 856 CTTGTCTG GGCTAGCTACAACGA TCAGTACA 3815 CAAGGGAA A CUUCUUAUG 858 CCATAGAAG GGCTAGCTACAACGA TCCTTGG 3185 3821 AAACUUCU A UGUAAAAA 859 TTTTTACA GGCTAGCTACAACGA TTCCCTTG 3186 3822 ACUUCUUAU G UAAAAAUC 860 GATTTTTA GGCTAGCTACAACGA TTTCCCTTG 3186 3823 ACUUCUUAU G UAAAAAUC 860 GATTTTTA GGCTAGCTACAACGA ATAGAAGT 3188 3829 AUGUAAAAA A UCACUAUG 861 CATAGTGA GGCTAGCTACAACGA ATAGAAGT 3189 3832 UAAAAAAUC A CUAUGAUU 862 AATCATAG GGCTAGCTACAACGA ATTGTAAT 3190 3833 UAAAAAAUC A CUAUGAUU 862 AATCATAG GGCTAGCTACAACGA ATTGTAAT 3191 38340 UCACUAUG A UUGUUCUA 864 TTCAGAAA GGCTAGCTACAACGA ATTGTAAT 3191 3835 AAAUCACU A UGAUUUCU 863 AGAATCA GGCTAGCTACAACGA ATTGTACA 3193 3846 AUUUCUGA A UUGUUAGA 864 TTCAGAAA GGCTAGCTACAACGA ATTGTAA 3193 3852 GAAUUGCU A UUGUAAAA 865 CATAGAAA GGCTAGCTACAACGA ATTCAGTA 3199 3853 AAAUCACU A UGAUAUGA 865 CATAGCAA GGCTAGCTACAACGA ATTCAGTA 3199 3854 UCACUAUGA A UUGUAGA 865 CATAGCAA GGCTAGCTACAACGA ATTCAGAA 3193 3859 UCACUAUGA A CUAUGGA 866 TCACATAG GGCTAGCTACAACGA ATTCAGAA 3193 3866 AAUUACAGA A UUGUAGA 867 TCACATAG GGCTAGCTACAACGA ATTCAGAA 3193 3859 UAUGUGAA A CUACAGAU 867 TCACATAG GGCTAGCTACAACGA ATTCAGAA 3199 3867 UUUUGGAA A CUACAGAU 867 TCACATAG GGCTAGCTACAACGA ATTCAGAA 3199 3868 GGAAACACU G UGAGACAC	3759	AAAAAUUA A UAGUUUUA	845	TAAAACTA GGCTAGCTACAACGA TAATTTTT	3173
3773 UUAUCUGG G UACAAAUA 848 TATTTGTA GCTAGCTACAACGA CCAGATAA 3176 3775 AUCUGGGU A CAAAUAAA 849 TTTATTTG GCTAGCTACAACGA ACCCAGAT 3177 3779 GGGUACAA A UAAACAGU 850 ACTGTTTA GGCTAGCTACAACGA TTGTACCC 3178 3783 ACAAAUAA A CAGUGCCU 851 AGGCACTG GGCTAGCTACAACGA TTGTACCC 3178 3786 AAUAAACA G UGCCUGAA 852 TTCAGGCA GGCTAGCTACAACGA TTGTTACCC 3178 3788 UAAACAGU G CCUGAACU 853 AGTTCAGG GGCTAGCTACAACGA TGTTTATT 3180 3798 UAAACAGU G CCUGAACU 853 AGTTCAGG GGCTAGCTACAACGA TCAGGCAC 3182 3798 CUGAACUA G UUCACAGA 854 TGAACTAG GGCTAGCTACAACGA TCAGGCAC 3182 3798 CUGAACUA G UUCACAGA 855 TCTGTGAG GGCTAGCTACAACGA TCAGGCAC 3183 3802 ACUAGUUC A CAGACAAG 856 CTTGTCTG GGCTAGCTACAACGA TAGTTCAG 3183 3806 GUUCACAG A CAGAGGAA 857 TCCCTTG GGCTAGCTACAACGA CAGTTCAGA 3183 3815 CAAGGGAA A CUUCUAUG 858 CATAGAAG GGCTAGCTACAACGA TAGTCAG 3821 AAACUUCU A UGUAAAAA 859 TTTTTACA GGCTAGCTACAACGA TAGTCACACGA 3186 3822 ACUUCUAU G UAAAAAAUC 860 GATTTTTA GGCTAGCTACAACGA ATAGAAGT 3187 3823 ACUUCUAU G UAAAAAAUC 860 GATTTTTA GGCTAGCTACAACGA ATAGAAGT 3188 3829 AUGUAAAA A UCACUAUG 861 CATAGTGA GGCTAGCTACAACGA ATAGAAGT 3189 3832 UAAAAAUC A CUAUGAUU 862 AATCATAG GGCTAGCTACAACGA ATAGAAGT 3189 3833 DAAAUCACU A UGAUGAUU 862 AATCATAG GGCTAGCTACAACGA ATAGAAGT 3190 3834 UAAAAAUC A CUAUGAUU 863 AGAAATCA GGCTAGCTACAACGA AGTAGTTA 3190 3835 AAAUCACU A UGAUGAU 863 AGAAATCA GGCTAGCTACAACGA AGTAGTTA 3191 3838 UCACUAUG A UUUCUGAA 864 TTCAGAAA GGCTAGCTACAACGA ATAGTAGA 3192 3846 AUUUCUGA A UUGCUAUG 865 CATAGCAA GGCTAGCTACAACGA ATTCAGAA 3192 3847 UUUGAAAU G CUAUGUGA 866 TCACATAG GGCTAGCTACAACGA ATTCAGAA 3193 3849 UCUGAAUU G CUAUGUGA 866 TCACATAG GGCTAGCTACAACGA ATTCAGAA 3193 3849 UCUGAAUU G CUAUGUGA 866 TCACATAG GGCTAGCTACAACGA ATTCAGAA 3193 3849 UCUGAACU A UGUGAAAC 867 GTTTCACA GGCTAGCTACAACGA ATTCAGAA 3193 3850 UAUGUGAA A CUACGAUU 870 AAGAATCT GGCTAGCTACAACGA ATTCAGAA 3194 3851 UAUGUGAA A CUACGAU 869 ATCTTAG GGCTAGCTACAACGA CATAGTAA 3194 3852 GAAUUGCU A UGUGAAC 867 GTTCCAAA GGCTAGCTACAACGA TCCAAAGA 3200 3862 GUGAAACU A CAGGUUU 870 AAGATCTG GGCTAGCTACAACGA CTTAACAC 3203 3863 UAGGGUG	3762	AAUUAAUA G UUUUAUCU	846	AGATAAAA GGCTAGCTACAACGA TATTAATT	3174
3775 AUCUGGGU A CAAAUAAA 849 TITATITG GGCTAGCTACAACGA ACCCAGAT 3177 3779 GGGUACAA A UAAACAGU 850 ACTGTTTA GGCTAGCTACAACGA TIGTACCC 3178 3783 ACAAAUAA A CAGUGCCU 851 AGGCACTG GGCTAGCTACAACGA TIGTACCC 3178 3786 AAUAAACA G UGCCUGAA 852 TICAGGCA GGCTAGCTACAACGA TGTTTATT 3180 3788 UAAACAGU G CCUGAACU 853 AGTTCAGG GGCTAGCTACAACGA TGTTTATT 3180 3788 UAAACAGU G CCUGAACU 853 AGTTCAGG GGCTAGCTACAACGA TCTGTTAT 3181 3794 GUGCCUGA A CUAGUUCA 854 TGAACTAG GGCTAGCTACAACGA ACTGTTTA 3181 3798 CUGAACUA G UUCACAGA 855 TCTGTGAA GGCTAGCTACAACGA TCAGGCAC 3182 3798 CUGAACUA G UUCACAGA 855 TCTCCTTG GGCTAGCTACAACGA TCAGTCAG 3800 ACUAGUUC A CAGACAAG 856 CTTGTCTG GGCTAGCTACAACGA CAACTAGT 3184 3801 GUUCACAGA A CAAGGGAA 857 TCCCCTTG GGCTAGCTACAACGA CAACTAGT 3184 3802 GUUCACAGA A CUUCUAUG 858 CATAGAAG GGCTAGCTACAACGA CACTAGT 3186 3821 AAACUUCU A UGUAAAAA 859 TTTTTTACA GGCTAGCTACAACGA AGAACTTT 3187 3823 ACUUCUAU G UAAAAAUC 860 GATTTTTA GGCTAGCTACAACGA ATAGAAGT 3188 3829 AUGUAAAA A UCACUAUG 861 CATAGTGA GGCTAGCTACAACGA ATAGAAGT 3189 3832 UAAAAAUC A CUAUGAUU 862 AATCATAG GGCTAGCTACAACGA ATAGAAGT 3189 3833 UAAAAAUC A CUAUGAUU 862 AATCATAG GGCTAGCTACAACGA AGTAGTTT 3190 3835 AAAUCACU A UGAUUCU 863 AGAAATCA GGCTAGCTACAACGA AGTAGTTT 3191 3836 UCACUAUG A UUUCUGAA 864 TCCAGAA GGCTAGCTACAACGA AGTAGTTT 3191 3837 AAAUCACU A UGAUUCU 865 AGAAATCA GGCTAGCTACAACGA AGTAGTAT 3193 3849 UCUGAAUU G CUAUGUGA 866 TCACATAG GGCTAGCTACAACGA ATTCAGAA 3192 3840 AUUUCUGA A UUGUAAAA 866 TCACATAG GGCTAGCTACAACGA ATTCAGAA 3192 3841 AUUCUGAA A UGAACUA 866 TCACATAG GGCTAGCTACAACGA ATTCAGA 3193 3842 UCUGAAUU G UGAAACUA 866 TCACATAG GGCTAGCTACAACGA ATTCAGA 3193 3843 UCUGAAUU G UGAAACUA 866 TCACATAG GGCTAGCTACAACGA ATTCAGA 3193 3844 AUUGUAAA A UGACUAUG 865 CATAGCAA GGCTAGCTACAACGA ATTCAGA 3193 3849 UCUGAAUU G UGAAACUA 866 TCACATAG GGCTAGCTACAACGA ATTCCATA 3193 3849 UCUGAAUU G UGAAACUA 866 TCACATAG GGCTAGCTACAACGA ATTCCATA 3193 3850 GAAUUGCUA A UGAACUA 867 TACACAGA GGCTAGCTACAACGA ATTCCATA 3193 3861 AUUGUGAA A CUUCUGAA 867 TACACAGA GGCTAGCTACAACGA ATTCCAA 3201 3862 GUGAACAU A CA	3767	AUAGUUUU A UCUGGGUA	847	TACCCAGA GGCTAGCTACAACGA AAAACTAT	3175
3779 GGGUACAA A UAAACAGU 850 ACTGTTTA GGCTAGCTACAACGA TTGTACCC 3178 3783 ACAAAUAA A CAGUGCCU 851 AGGCACTG GGCTAGCTACAACGA TTATTTGT 3179 3786 AAUAAACA G UGCCUGAAC 852 TTCAGGCA GGCTAGCTACAACGA TTATTTGT 3179 3786 AAUAAACA G UGCCUGAAC 852 TTCAGGCA GGCTAGCTACAACGA ACTGTTTAT 3180 3788 UAAACAGU G CCUGAACU 853 AGTCAGG GGCTAGCTACAACGA ACTGTTTAT 3181 3794 GUGCCUGA A CUAGUUCA 854 TGAACTAG GGCTAGCTACAACGA ACTGTTTA 3181 3798 CUGAACUA G UUCACAGA 855 TCTGTGAA GGCTAGCTACAACGA TGAGGCAC 3182 3798 CUGAACUA G UUCACAGA 855 TCTGTGAA GGCTAGCTACAACGA TGAGGCAC 3183 3802 ACUAGUUC A CAGACAAG 856 CTTGTCTG GGCTAGCTACAACGA TGGTAACA 3806 GUUCACAGA A CAAGGGAA 857 TTCCCTTG GGCTAGCTACAACGA TGTGAAC 3185 3815 CAAGAGGAA A CUUCUAUG 858 CATAGAAG GGCTAGCTACAACGA TTCCCTTG 3186 3821 AAACUUCU A UGUAAAAA 859 TTTTTACA GGCTAGCTACAACGA TGGAACA 3822 AUGULAAAA A UCACUAUG 861 CATAGTAG GGCTAGCTACAACGA AGAACTTT 3187 3823 ACUUCUAU G UAAAAAUC 860 GATTTTA GGCTAGCTACAACGA ATAGAAGT 3188 3829 AUGULAAAA A UCACUAUG 861 CATAGTAG GGCTAGCTACAACGA ATAGAAGT 3189 3832 UAAAAAUC A CUAUGAUU 862 AACCATAG GGCTAGCTACAACGA ATTGTACAT 3189 3833 AAAUCACU A UGUUGUAA 864 TTCAGAAA GGCTAGCTACAACGA AGTGATTT 3191 3834 UCACUAUG A UUUCUGAA 864 TTCAGAAA GGCTAGCTACAACGA AGTGATTT 3191 3838 UCACUAUG A UUUCUGAA 864 TTCAGAAA GGCTAGCTACAACGA AGTGATTT 3191 3846 AUUUCUGA A UUGUGAAC 865 CATAGCAA GGCTAGCTACAACGA AGTGATTT 3193 3849 UCAUGAAUU G CUAUGUGA 866 TCACATAG GGCTAGCTACAACGA ATTGTGA 3193 3840 UCAUGAAU A UGUGAAC 867 GTTCCATAG GGCTAGCTACAACGA ATTGCAA 3193 3851 AAAUCACU A UGUGAAAC 867 GTTCCATAG GGCTAGCTACAACGA ATTGCAAT 3193 3852 GUAUGAAA A CUACAGAU 869 ATCTTGAG GGCTAGCTACAACGA ATTGCAAT 3193 3854 AUUGCUAU G UGAAAC 867 GTTCCATAG GGCTAGCTACAACGA ATTGCAAT 3193 3859 UAUGUGAA A CUACAGAU 869 ATCTTGTAG GGCTAGCTACAACGA ATTGCAAT 3193 3851 UAGCUUGA A CUACAGAU 869 ATCTTGTAG GGCTAGCTACAACGA ATTCCATA 3193 3852 GUAGAACU A CAGAUCUU 870 AAGACTG GGCTAGCTACAACGA ATTCCAAA 3201 3860 GGAACACU G UUUAGGUA 871 TCCAAAA GGCTAGCTACAACGA ATTCCAAA 3201 3861 UAUGUGAA A CUACAGAU 879 AACAATG GGCTAGCTACAACGA ATTGCCAA 3201 3860 GGAACACU	3773	UUAUCUGG G UACAAAUA	848	TATTTGTA GGCTAGCTACAACGA CCAGATAA	3176
3783 ACAAAUAA A CAGUGCCU 851 AGGCACTG GGCTAGCTACAACGA TTATTTGT 3179 3786 AAUAAACA G UGCCUGAA 852 TTCAGGCA GGCTAGCTACAACGA TGTTTATT 3180 3788 UAAACAGU G CCUGAACU 853 AGTTCAGG GGCTAGCTACAACGA ACTGTTTA 3181 3794 GUGCCUGA A CUAGUUCA 854 TGAACTAG GGCTAGCTACAACGA ACTGTTTA 3181 3794 GUGCCUGA A CUAGUUCA 854 TGAACTAG GGCTAGCTACAACGA ACTGTTCAG 3182 3798 CUGAACUA G UUCACAGA 855 TCTGTGAA GGCTAGCTACAACGA TCAGGCAC 3182 3802 ACUAGUUC A CAGACAAG 856 CTTGTCTG GGCTAGCTACAACGA GAACTAGT 3184 3806 GUUCACAG A CAAGGGAA 857 TTCCCTTG GGCTAGCTACAACGA GAACTAGT 3184 3815 CAAGGGAA A CUUCUAUG 858 CATAGAAG GGCTAGCTACAACGA CTGTGAAC 3185 3821 AAACUUCU A UGUAAAAA 859 TTTTTACA GGCTAGCTACAACGA ATAGAAGT 3187 3823 ACUUCUAU G UAAAAAUC 860 GATTTTA GGCTAGCTACAACGA ATAGAAGT 3188 3829 AUGUAAAA A UCACUAUG 861 CATAGTGA GGCTAGCTACAACGA ATAGAAGT 3189 3832 UAAAAAUC A CUAUGAUU 862 AATCATAG GGCTAGCTACAACGA ATAGAAGT 3189 3833 UAAAAAUC A CUAUGAUU 863 AGAAATCA GGCTAGCTACAACGA ATTTTACAT 3189 3834 UAAAAAUC A UAGUUUCU 863 AGAAATCA GGCTAGCTACAACGA AGTAGTTT 3191 3838 UCACUAUG A UUCUUGAA 864 TTCAGAAA GGCTAGCTACAACGA CATAGTGA 3192 3846 AUUUCUGA A UUGCUAUG 865 CATAGCAA GGCTAGCTACAACGA CATAGTGA 3192 3849 UCUGAAAU G CUAUGUGA 866 TCACATAG GGCTAGCTACAACGA ATAGTAGA 3194 3852 GAAUUGCU A UGUAAAAC 867 TCACATAG GGCTAGCTACAACGA ATAGCAAT 3193 3849 UCUGAAAU G CUAUGUGA 866 TCACATAG GGCTAGCTACAACGA ATACCAAT 3193 3854 AUUCUGAA A UUGCUAUG 865 CATAGCAA GGCTAGCTACAACGA ATACCAAT 3193 3854 UCUGAAAU G CUAUGUGA 866 TCACATAG GGCTAGCTACAACGA ATACCAAT 3193 3852 GAAUUGCU A UGUGAAAC 867 TCACATAG GGCTAGCTACAACGA ATACCAAT 3193 3854 AUUGCUAU G UGAAACU 866 TCACATAG GGCTAGCTACAACGA ATACCAAT 3193 3854 AUUGCUAA A CACAUGUU 870 AAGATCT GGCTAGCTACAACGA ATACCAAT 3195 3854 AUUGCUAA A CACAUGUU 870 AAGATCT GGCTAGCTACAACGA ATACCAAT 3196 3855 UAUGUGAA A CUACAGAU 866 TCACATAG GGCTAGCTACAACGA ATACCAAT 3196 3866 AACUACGA UCUUGGA 871 TCACAAGA GGCTAGCTACAACGA CTGTAGTT 3199 3867 UUUGGAAC A CUGUUGA 871 AACAGTG GGCTAGCTACAACGA CTGTAGAT 3200 3877 UUUGGAAC A CUGUUGA 871 AACAGTG GGCTAGCTACAACGA CTGCTAACAGA 3201 3880 GGAACAC	3775	AUCUGGGU A CAAAUAAA	849	TTTATTTG GGCTAGCTACAACGA ACCCAGAT	3177
3786 AAUAAACA G UGCCUGAA 852 TTCAGGCA GGCTAGCTACAACGA TGTTTATT 3180 3788 UAAACAGU G CCUGAACU 853 AGTTCAGG GGCTAGCTACAACGA ACTGTTTA 3181 3794 GUGCCUGA A CUAGUUCA 854 TGAACTAG GGCTAGCTACAACGA ACTGTTTA 3181 3794 GUGCCUGA A CUAGUUCA 854 TGAACTAG GGCTAGCTACAACGA TCAGGCAC 3182 3798 CUGAACUA G UUCACAGA 855 TCTGTGAA GGCTAGCTACAACGA TAGTCAG 3183 3802 ACUAGUUC A CAGACAAG 856 CTTGTCTG GGCTAGCTACAACGA GAACTAGT 3184 3806 GUUCACAG A CAAGGGAA 857 TTCCCTTG GGCTAGCTACAACGA GAACTAGT 3186 3821 AAACUUCU A UGUAAAAA 859 TTTTTCATA GGCTAGCTACAACGA AGAAGTTT 3187 3823 ACUUCUAU G UAAAAAUC 860 GATTTTTA GGCTAGCTACAACGA AGAAGTTT 3187 3823 ACUUCUAU G UAAAAAUC 861 CATAGTAG GGCTAGCTACAACGA ATAGAAGT 3188 3832 UAAAAAUC A CUAUGAUU 862 AATCATAG GGCTAGCTACAACGA ATTACAT 3189 3833 AAAUCACU A UGAUUUCU 863 AGAAATCA GGCTAGCTACAACGA AGTAGTTT 3191 3834 UCACUAUG A UUUCUGAA 864 TTCAGAAA GGCTAGCTACAACGA AGTAGTTT 3191 3838 UCACUAUG A UUUCUGAA 864 TTCAGAAA GGCTAGCTACAACGA AGTAGTTT 3191 3849 UCUGAAUU G UGAAACUA 866 TCACATAG GGCTAGCTACAACGA AATTCAGA 3192 3846 AUUUCUGA A UUGCUAUG 865 CATAGCAA GGCTAGCTACAACGA AATTCAGA 3194 3852 GAAUUGCU A UGUGUAUG 866 TCACATAG GGCTAGCTACAACGA AATTCAGA 3194 3852 GAAUUGCU A UGUGAAAC 867 GTTTCACA GGCTAGCTACAACGA AATTCAGA 3194 3854 AUUGCUAU G UGAAACUA 866 TCACATAG GGCTAGCTACAACGA AATTCAGA 3194 3855 GAAUUGCU A UGUGAAAC 867 GTTTCACA GGCTAGCTACAACGA AATTCAGA 3194 3856 AAUUGCUAU G UGAAACUA 868 TAGTTCA GGCTAGCTACAACGA AGCAATTC 3195 3857 UAUGCUAU G UGAAACUA 867 TCACATAG GGCTAGCTACAACGA AGCAATTC 3195 3858 AAAUCACU G UUAAGACU 870 AAGATCT GGCTAGCTACAACGA AGTATTCACA 3197 3866 AACUACAGA A CUACAGAU 870 AAGATCT GGCTAGCTACAACGA AGTATCAACA 3197 3867 UUUGGAAC A CAGAUCUU 870 AAGATCT GGCTAGCTACAACGA AGTATCAACA 3200 3877 UUUGGAAC A CAGAUCUU 870 AAGATCT GGCTAGCTACAACGA AGTTCCAACGA 3200 3887 UUUGGAAC A CUGUUAGA 871 TCCAAAGA GGCTAGCTACAACGA AGTTCCAACGA 3200 3880 GGAACCU G UUUAGGUA 871 TCCAAAGA GGCTAGCTACAACGA AGTTCCAACGA 3200 3881 UAGGUAGA C CUACAGAU 877 AACAGTG GGCTAGCTACAACGA CTAACCAA 3201 3889 GGUAGGGU G UUAAGACU 877 AGTCTTAA GGCTAGCTACAACGA CTAACCAC 32	3779	GGGUACAA A UAAACAGU	850	ACTGTTTA GGCTAGCTACAACGA TTGTACCC	3178
3788 UAAACAGU G CCUGAACU 853 AGTTCAGG GGCTAGCTACAACGA ACTGTTTA 3181 3794 GUGCCUGA A CUAGUUCA 854 TGAACTAG GGCTAGCTACAACGA TCAGGCAC 3182 3798 CUGAACUA G UUCACAGA 855 TCTGTGAA GGCTAGCTACAACGA TAGTTCAG 3163 3802 ACUAGUUC A CAGACAAG 855 TCTGTGAA GGCTAGCTACAACGA GAACTAGT 3184 3806 GUUCACAG A CAAGGGAA 857 TCCCTTG GGCTAGCTACAACGA CTGTGAAC 3185 3815 CAAGGGAA A CUUCUAUG 858 CATAGAAG GGCTAGCTACAACGA TCCCTTG 3186 3821 AAACUUCU A UGUAAAAA 859 TTTTTACA GGCTAGCTACAACGA AGAAGTTT 3187 3823 ACUUCUAU G UAAAAAUC 860 GATTTTA GGCTAGCTACAACGA ATAGAAGT 3188 3829 AUGUAAAA A UCACUAUG 861 CATAGTGA GGCTAGCTACAACGA ATAGAAGT 3189 3831 UAAAAAAUC A CUAUGAUU 862 AATCATAG GGCTAGCTACAACGA ATTTACAT 3189 3832 UAAAAAAUC A CUAUGAUU 862 AATCATAG GGCTAGCTACAACGA ATTTTTA 3190 3838 UACACUAUG A UGUUUCU 863 AGAAATCA GGCTAGCTACAACGA ATTTTTA 3191 3838 UCACUAUG A UGUUUCU 863 AGAAATCA GGCTAGCTACAACGA CATAGTGATT 3191 3838 UCACUAUG A UUUCUGAA 864 TCACAGAA GGCTAGCTACAACGA CATAGTGA 3192 3846 AUUUCUGA A UUGCUAUG 865 CATAGCAA GGCTAGCTACAACGA CATAGTGA 3193 3849 UCUGAAUU G CUAUGUGA 866 TCACATAG GGCTAGCTACAACGA AATTCAGA 3194 3852 GAAUUGCU A UGUGAAAC 867 GTTTCACA GGCTAGCTACAACGA AATTCAGA 3194 3853 AUCACUAUG U UGAAACUA 868 TAGTTTCA GGCTAGCTACAACGA AATTCAGA 3194 3854 AUUGCUAU G UGAAACUA 868 TAGTTTCA GGCTAGCTACAACGA AATTCAGA 3195 3859 UAUGUGAA A CUACAGAU 869 ATCTGTAG GGCTAGCTACAACGA ATTGCAAT 3195 3864 AUUGCUAU G UGAAACUA 868 TAGTTTCA GGCTAGCTACAACGA ACGAATTC 3195 3859 UAUGGAA A CUACAGAU 869 ATCTGTAG GGCTAGCTACAACGA ACGAATTC 3196 3866 AACUACAG A UCUUUGA 870 AAGATCTG GGCTAGCTACAACGA ACGAATTC 3199 3875 UCUUUGGA A CACUGUUU 870 AAGATCTG GGCTAGCTACAACGA ACGTATA 3197 3886 GGAACACU G UUUAGGA 871 TCCAAAGA GGCTAGCTACAACGA ACTGTACA 3201 3887 UUGGAACCU G UUAAGACU 877 AAACAGTG GGCTAGCTACAACGA ACTGTCCAA 3201 3888 GGAACACU G UUAAGACU 877 AAACAGTG GGCTAGCTACAACGA ACTCCAAA 3201 3889 GGAACACU G UUAAGACU 877 AAACAGTG GGCTAGCTACAACGA ACCCTACC 3202 3899 GUGUUAAG A CUGAGACC 878 GTGCTACAACGA ACCCTACC 3205 3899 GUGUUAAG A CUGAACAC 879 GTGCTACAACGA ACCCTACC 3206	3783	ACAAAUAA A CAGUGCCU	851	AGGCACTG GGCTAGCTACAACGA TTATTTGT	3179
3794         GUGCCUGA A CUAGUUCA         854         TGAACTAG GGCTAGCTACAACGA TCAGGCAC         3182           3798         CUGAACUA G UUCACAGA         855         TCTGTGAA GGCTAGCTACAACGA TAGTTCAG         3183           3802         ACUAGUUC A CAGACAGG         856         CTTGTCTG GGCTAGCTACAACGA GAACTAGT         3184           3806         GUUCACAG A CAAGGAA         857         TTCCCTTG GGCTAGCTACAACGA TGCTGTACA         3185           3815         CAAAGGAA A CUUCUAUG         858         CATAGAGA GGCTACAACGA TTCCCTTG         3186           3821         AAACUUCU A UGAAAAAA         859         TTTTTTACA GGCTAGCTACAACGA ATAGAAGT         3187           3823         ACUUCUAU G UAAAAAUC         860         GATTTTTA GGCTAGCTACAACGA ATAGAAGT         3189           3822         DAAAAAUC A UGAUUUCU         861         CATAGTGA GGCTAGCTACAACGA ATTAGAAGT         3190           3835         AAAUCACU A UGAUUUCU         863         AGAAATCA GGCTAGCTACAACGA ACTAGTAT         3191           3846         AUUUCUGA A UUUCUGAA         864         TCAGAAA GGCTAGCTACAACGA ACTAGTGA         3193           3849         UCUGAAUU G CUAUGUGA         865         CATAGCAA GGCTAGCTACAACGA ACTAGTAA         3194           3852         GAAUGCU A UGAAACUA         867         GTTTCACA GGCTAGCTACAACGA ACTAGTAC         3195	3786	AAUAAACA G UGCCUGAA	852	TTCAGGCA GGCTAGCTACAACGA TGTTTATT	3180
3798 CUGAACUA G UUCACAGA 855 TCTGTGAA GGCTAGCTACAACGA TAGTTCAG 3183 3802 ACUAGUUC A CAGACAAG 856 CTTGTCTG GGCTAGCTACAACGA GAACTAGT 3184 3806 GUUCACAG A CAAGGGAA 857 TCCCTTG GGCTAGCTACAACGA GAACTAGT 3185 3815 CAAGGGAA A CUUCUAUG 858 CATAGAAG GGCTAGCTACAACGA TTCCCTTG 3186 3821 AAACUUCU A UGUAAAAA 859 TTTTTACA GGCTAGCTACAACGA ATAGAGTTT 3187 3823 ACUUCUAU G UAAAAAUC 860 GATTTTA GGCTAGCTACAACGA ATAGAGTT 3188 3829 AUGUAAAA A UCACUAUG 861 CATAGTGA GGCTAGCTACAACGA ATAGAAGT 3188 3822 UAAAAAUC A CUAUGAUU 862 AATCATAG GGCTAGCTACAACGA GATTTTACAT 3189 3832 UAAAAAUC A CUAUGAUU 863 AGAAATCA GGCTAGCTACAACGA GATTTTTA 3190 3835 AAAUCACU A UGAUUUCU 863 AGAAATCA GGCTAGCTACAACGA GATTTTTA 3191 3838 UCACUAUG A UUCUGAA 864 TCCAGAAA GGCTAGCTACAACGA AGTGATTT 3191 3849 UCUGAAUU G CUAUGUG 865 CATAGCAA GGCTAGCTACAACGA CATAGTGA 3192 3849 UCUGAAUU G CUAUGUG 866 TCACATAG GGCTAGCTACAACGA AATTCAGA 3194 3852 GAAUUGCU A UGUGAAAC 867 GTTTCACA GGCTAGCTACAACGA AATTCAGA 3194 3854 AUUGCUAU G UGAAACUA 866 TCACATAG GGCTAGCTACAACGA AATTCAGA 3194 3855 GAAUUGCU A UGUGAAAC 867 GTTTCACA GGCTAGCTACAACGA ATAGCAAT 3195 3854 AUUGCUAU G UGAAACUA 866 TAGTTCA GGCTAGCTACAACGA ATAGCAAT 3195 3855 UAUGUGAA A CUACAGAU 869 ATCTGTAG GGCTAGCTACAACGA ATAGCAAT 3196 3859 UAUGUGAA A CUACAGAU 869 ATCTGTAG GGCTAGCTACAACGA ATAGCAAT 3196 3860 AACUACAG A UCUUUGGA 871 TCCAAAGA GGCTAGCTACAACGA TTCACATA 3197 3861 ACUACAG A UCUUUGGA 871 TCCAAAGA GGCTAGCTACAACGA AGTTTCAC 3198 3875 UCUUGGAA C CUGUUUG 872 AACAGTG GGCTAGCTACAACGA GTTCCAAA 3201 3877 UUUGGAAC A CUGUUUG 872 AACAGTG GGCTAGCTACAACGA GTTCCAAA 3201 3877 UUUGGAAC A CUUUGGA 874 TACCTAAA GGCTAGCTACAACGA GTTCCAAA 3201 3880 GGAACACU G UUAAGGUG 875 ACACCCTA GGCTAGCTACAACGA GTTCCAAA 3201 3881 UAGGUAGG G UGUAAACA 876 TTCTAAA GGCTAGCTACAACGA GTTCCAAA 3201 3881 UAGGUAG A CACUGUUU 872 AACAGTG GGCTAGCTACAACGA GTTCCAAA 3201 3881 UAGGUAG A CACUGUU 877 AGTCTTAA GGCTAGCTACAACGA CTAAACAG 3203 3891 UAGGUAGA A CUUGACAC 878 GTTCTAAA GGCTAGCTACAACGA CTAACCTA 3204 3893 GGUAGAGUU A CACAGUAC 879 GTTCTAAA GGCTAGCTACAACGA CCTACCTA 3204 3893 GGUAGAGUU A CA	3788	UAAACAGU G CCUGAACU	853	AGTTCAGG GGCTAGCTACAACGA ACTGTTTA	3181
3802         ACUAGUUC A CAGACAAG         856         CTTGTCTG GGCTACAACGA GAACTAGT         3184           3806         GUUCACAG A CAAGGGAA         857         TTCCCTTG GGCTACAACGA CTGTGAAC         3185           3815         CAAGGGAA A CUUCUAUG         858         CATAGAAG GGCTAGCTACAACGA TTCCCTTG         3186           3821         AAACUUCU A UGUAAAAA         859         TTTTTACA GGCTAGCTACAACGA AGAAGTT         3187           3823         ACUUCUAU G UAAAAAUC         860         GATTTTA GGCTAGCTACAACGA ATAGAAGT         3188           3829         AUGUAAAA A UCACUAUG         861         CATAGTGA GGCTAGCTACAACGA ATTGCAT         3189           3832         UAAAAAUC A CUAUGUU         862         AATCATAG GGCTAGCTACAACGA ATTGCAT         3189           3835         AAAUCACU A UGAUUCU         863         AGAAATCA GGCTAGCTACAACGA AGTGATTT         3191           3838         UCACUAUG A UUCUGAA         864         TTCAGAAA GGCTAGCTACAACGA CATAGTGA         3192           3846         AUUUCUGA A UUGUGAA         866         TCACATAG GGCTAGCTACAACGA ACGAATT         3193           3852         GAAUUGCU A UGUGAACA         867         GTTTCACA GGCTAGCTACAACGA ACGAATTC         3194           3853         AUUGCUAA         866         TACATTAG GGCTAGCTACAACGA ATTGCAAT         3196	3794	GUGCCUGA A CUAGUUCA	854	TGAACTAG GGCTAGCTACAACGA TCAGGCAC	3182
3806         GUUCACAG A CAAGGGAA         857         TTCCCTTG GGCTAGCTACAACGA CTGTGAAC         3185           3815         CAAGGGAA A CUUCUAUG         858         CATAGAAG GGCTAGCTACAACGA TTCCCTTG         3186           3821         AAACUUCU A UGUAAAAA         859         TTTTTACA GGCTAGCTACAACGA AGAAGTTT         3187           3823         ACUUCUAU G UAAAAAUC         860         GATTTTA GGCTAGCTACAACGA ATAGAAGT         3188           3829         AUGUAAAA A UCACUAUG         861         CATAGTGA GGCTAGCTACAACGA ATAGAAGT         3189           3832         UAAAAAUC A CUAUGAUU         862         AATCATAG GGCTAGCTACAACGA GATTTTTA         3190           3835         AAAUCACU A UGUUUGAA         864         TTCAGAAA GGCTAGCTACAACGA AGTGATT         3191           3836         AUUUCUGA A UUGCUAUG         864         TTCAGAAA GGCTAGCTACAACGA CATAGTGA         3192           3846         AUUUCUGA A UUGCUAUG         865         CATAGCAA GGCTAGCTACAACGA ATTCAGA         3194           3852         GAAUUGCU A UGUGAAAC         867         GTTTCACA GGCTAGCTACAACGA ATTCAGA         3194           3854         AUUGCUAU G UGAAACUA         868         TAGTTTCA GGCTACCAACGA ATTACAACA         3196           3859         UAUGUGAA A CUACAGAU         869         ATCTGTAG GGCTACCAACGA ATTACAACA         3197 <td>3798</td> <td>CUGAACUA G UUCACAGA</td> <td>855</td> <td>TCTGTGAA GGCTAGCTACAACGA TAGTTCAG</td> <td>3183</td>	3798	CUGAACUA G UUCACAGA	855	TCTGTGAA GGCTAGCTACAACGA TAGTTCAG	3183
3815         CAAGGGAA A CUUCUAUG         858         CATAGAAG GGCTAGCTACAACGA TTCCCTTG         3186           3821         AAACUUCU A UGUAAAAA         859         TTTTTACA GGCTAGCTACAACGA AGAAGTTT         3187           3823         ACUUCUAU G UAAAAAUC         860         GATTTTTA GGCTAGCTACAACGA ATAGAAGT         3188           3829         AUGUAAAA A UCACUAUG         861         CATAGTGA GGCTAGCTACAACGA TTTTACAT         3189           3832         UAAAAAUC A CUAUGAUU         862         AATCATAG GGCTAGCTACAACGA GATTTTA         3190           3835         AAAUCACU A UGAUUUCU         863         AGAAATCA GGCTAGCTACAACGA AGTGATT         3191           3838         UCACUAUG A UUUCUGAA         864         TTCAGAAA GGCTAGCTACAACGA CATAGTGA         3192           3846         AUUUCUGA A UUGCUAUG         865         CATAGCAA GGCTAGCTACAACGA CATAGTGA         3193           3849         UCUGAAUU G CUAUGUGA         866         TCACATAG GGCTAGCTACAACGA AATTCAGA         3194           3852         GAAUUGCU A UGUGAAACU         867         GTTTCACA GGCTAGCTACAACGA ATCACATA         3195           3854         AUUGCUAU G UGAAACUA         868         TAGTTCA GGCTAGCTACAACGA ATCACATA         3196           3859         UAUGUGAA A CUACAGAU         869         ATCTGTAG GGCTAGCTACAACGA ATCACATA         31	3802	ACUAGUUC A CAGACAAG	856	CTTGTCTG GGCTAGCTACAACGA GAACTAGT	3184
3821         AAACUUCU A UGUAAAAA         859         TTTTTACA GGCTAGCTACAACGA AGAAGTTT         3187           3823         ACUUCUAU G UAAAAAUC         860         GATTTTTA GGCTAGCTACAACGA ATAGAAGT         3188           3829         AUGUAAAA A UCACUAUG         861         CATAGTGA GGCTAGCTACAACGA TTTTACAT         3189           3832         UAAAAAUC A CUAUGAUU         862         AATCATAG GGCTAGCTACAACGA GATTTTA         3190           3835         AAAUCACU A UGAUUUCU         863         AGAAATCA GGCTAGCTACAACGA AGTGATT         3191           3836         UCACUAUG A UUUCUGAA         864         TTCAGAAA GGCTAGCTACAACGA CATAGTGA         3192           3846         AUUUCUGA A UUGCUAUG         865         CATAGCAA GGCTAGCTACAACGA CATAGTGA         3193           3849         UCUGAAUU G CUAUGUGA         866         TCACATAG GGCTAGCTACAACGA AATTCAGA         3194           3852         GAAUUGCU A UGUGAAACU         867         GTTTCACA GGCTAGCTACAACGA ATAGCAAT         3195           3854         AUUGCUAU G UGAAACUA         868         TAGTTTCA GGCTAGCTACAACGA ATCACAAT         3196           3859         UAUGUGAA A CUACAGAU         870         AAGATCTG GGCTAGCTACAACGA TTCACATA         3197           3866         AACUACAGA         1871         TCCAAAGA GGCTAGCTACAACGA CTGTAGTT         3198	3806	GUUCACAG A CAAGGGAA	857	TTCCCTTG GGCTAGCTACAACGA CTGTGAAC	3185
3823         ACUUCUAU G UAAAAAUC         860         GATTTTTA GGCTAGCTACAACGA ATAGAAGT         3188           3829         AUGUAAAA A UCACUAUG         861         CATAGTGA GGCTAGCTACAACGA TTTTACAT         3189           3832         UAAAAAUC A CUAUGAUU         862         AATCATAG GGCTAGCTACAACGA GATTTTA         3190           3835         AAAUCACU A UGAUUUCU         863         AGAAATCA GGCTAGCTACAACGA AGTGATT         3191           3838         UCACUAUG A UUUCUGAA         864         TTCAGAAA GGCTAGCTACAACGA CATAGTGA         3192           3846         AUUUCUGA A UUGCUAUG         865         CATAGCAA GGCTAGCTACAACGA CATAGTGA         3193           3849         UCUGAAUU G CUAUGUGA         866         TCACATAG GGCTAGCTACAACGA AATTCAGA         3194           3852         GAAUUGCU A UGUGAAAC         867         GTTTCACA GGCTAGCTACAACGA AGCAATTC         3195           3854         AUUGCUAU G UGAAACUA         868         TAGTTTCA GGCTAGCTACAACGA ATAGCAAT         3196           3859         UAUGUGAA A CUACAGAU         870         AAGATCTG GGCTAGCTACAACGA AGTTTCAC         3198           3866         AACUACAG A UCUUUGGA         871         TCCAAAGA GGCTAGCTACAACGA CTGATAGT         3199           3875         UCUUUGGA A CACUGUUU         872         AAACAGTG GGCTAGCTACAACGA CTCCAAA         320	3815	CAAGGGAA A CUUCUAUG	858	CATAGAAG GGCTAGCTACAACGA TTCCCTTG	3186
3829         AUGUAAAA A UCACUAUG         861         CATAGTGA GGCTAGCTACAACGA TTTTACAT         3189           3832         UAAAAAUC A CUAUGAUU         862         AATCATAG GGCTAGCTACAACGA GATTTTA         3190           3835         AAAUCACU A UGAUUUCU         863         AGAAATCA GGCTAGCTACAACGA AGTGATTT         3191           3838         UCACUAUG A UUUCUGAA         864         TTCAGAAA GGCTAGCTACAACGA CATAGTGA         3192           3846         AUUUCUGA A UUGCUAUG         865         CATAGCAA GGCTAGCTACAACGA TCAGAAAT         3193           3849         UCUGAAUU G CUAUGUGA         866         TCACATAG GGCTAGCTACAACGA AATTCAGA         3194           3852         GAAUUGCU A UGUGAAAC         867         GTTTCACA GGCTAGCTACAACGA AGCAATTC         3195           3854         AUUGCUAU G UGAAACUA         868         TAGTTTCA GGCTAGCTACAACGA ATAGCAAT         3196           3859         UAUGUGAA A CUACAGAU         869         ATCTGTAG GGCTAGCTACAACGA TTCACATA         3197           3866         AACUACAG A UCUUUGGA         871         TCCAAAGA GGCTAGCTACAACGA CTGTAGTT         3199           3875         UCUUUGGA A CACUGUUU         872         AAACAGTG GGCTAGCTACAACGA CTCAAACGA         3201           3880         GGAACACU G UUUAGGUA         874         TACCTAAA GGCTAGCTACAACGA CTAAACAG	3821	AAACUUCU A UGUAAAAA	859	TTTTTACA GGCTAGCTACAACGA AGAAGTTT	3187
3832 UAAAAAUC A CUAUGAUU 862 AATCATAG GGCTAGCTACAACGA GATTTTTA 3190 3835 AAAUCACU A UGAUUUCU 863 AGAAATCA GGCTAGCTACAACGA AGTGATTT 3191 3838 UCACUAUG A UUUCUGAA 864 TTCAGAAA GGCTAGCTACAACGA CATAGTGA 3192 3846 AUUUCUGA A UUGCUAUG 865 CATAGCAA GGCTAGCTACAACGA CATAGTGA 3193 3849 UCUGAAUU G CUAUGUGA 866 TCACATAG GGCTAGCTACAACGA AATTCAGA 3194 3852 GAAUUGCU A UGUGAAAC 867 GTTTCACA GGCTAGCTACAACGA ACTACAGA 3195 3854 AUUGCUAU G UGAAACUA 868 TAGTTTCA GGCTAGCTACAACGA ATAGCAAT 3196 3859 UAUGUGAA A CUACAGAU 869 ATCTGTAG GGCTAGCTACAACGA ATAGCAAT 3197 3862 GUGAAACU A CAGAUCUU 870 AAGATCTG GGCTAGCTACAACGA AGTTTCAC 3198 3876 AACUACAG A UCUUUGGA 871 TCCAAAGA GGCTAGCTACAACGA AGTTTCAC 3199 3875 UCUUUGGA A CACUGUUU 872 AAACAGTG GGCTAGCTACAACGA TCCAAAGA 3200 3877 UUUGGAAC A CUGUUUAG 873 CTAAACAG GGCTAGCTACAACGA GTTCCAAA 3201 3880 GGAACACU G UUUAGGUA 874 TACCTAAA GGCTAGCTACAACGA AGTGTTCC 3202 3886 CUGUUUAG G UAGGGUGU 875 ACACCCTA GGCTAGCTACAACGA CTAAACAG 3203 3891 UAGGUAGG G UGUUAAGA 876 TCTTAACA GGCTAGCTACAACGA CTAAACAG 3204 3893 GGUAGGGU G UUAAGACU 877 AGTCTTAA GGCTAGCTACAACGA CCTACCTA 3204 3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CTTAACAC 3206 3904 AAGACUUG A CACAGUAC 879 GTACTGTG GGCTAGCTACAACGA CAAGTCTT 3207	3823	ACUUCUAU G UAAAAAUC	860	GATTTTA GGCTAGCTACAACGA ATAGAAGT	3188
3835 AAAUCACU A UGAUUUCU 863 AGAAATCA GGCTAGCTACAACGA AGTGATTT 3191 3838 UCACUAUG A UUUCUGAA 864 TTCAGAAA GGCTAGCTACAACGA CATAGTGA 3192 3846 AUUUCUGA A UUGCUAUG 865 CATAGCAA GGCTAGCTACAACGA TCAGAAAT 3193 3849 UCUGAAUU G CUAUGUGA 866 TCACATAG GGCTAGCTACAACGA AATTCAGA 3194 3852 GAAUUGCU A UGUGAAAC 867 GTTTCACA GGCTAGCTACAACGA AGCAATTC 3195 3854 AUUGCUAU G UGAAACUA 868 TAGTTTCA GGCTAGCTACAACGA ATAGCAAT 3196 3859 UAUGUGAA A CUACAGAU 869 ATCTGTAG GGCTAGCTACAACGA ATAGCAAT 3197 3862 GUGAAACU A CAGAUCUU 870 AAGATCTG GGCTAGCTACAACGA TCACATA 3197 3866 AACUACAG A UCUUUGGA 871 TCCAAAGA GGCTAGCTACAACGA CTGTAGTT 3199 3875 UCUUUGGA A CACUGUUU 872 AAACAGTG GGCTAGCTACAACGA TCCAAAGA 3200 3877 UUUGGAAC A CUGUUUAG 873 CTAAACAG GGCTAGCTACAACGA GTTCCAAA 3201 3880 GGAACACU G UUUAGGUA 874 TACCTAAA GGCTAGCTACAACGA AGTGTTCC 3202 3886 CUGUUUAG G UAGGGUGU 875 ACACCCTA GGCTAGCTACAACGA CTAAACAG 3203 3891 UAGGUAGG G UGUUAAGA 876 TCTTAACA GGCTAGCTACAACGA CTAAACAG 3204 3893 GGUAGGGU G UUAAGACU 877 AGTCTTAA GGCTAGCTACAACGA ACCCTACC 3205 3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CTTAACAC 3206 3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CTTAACAC 3206 3904 AAGACUUG A CACAGUAC 879 GTACTGTG GGCTAGCTACAACGA CAAGTCTT 3207	3829	AUGUAAAA A UCACUAUG	861	CATAGTGA GGCTAGCTACAACGA TTTTACAT	3189
3838 UCACUAUG A UUUCUGAA 864 TTCAGAAA GGCTAGCTACAACGA CATAGTGA 3192 3846 AUUUCUGA A UUGCUAUG 865 CATAGCAA GGCTAGCTACAACGA TCAGAAAT 3193 3849 UCUGAAUU G CUAUGUGA 866 TCACATAG GGCTAGCTACAACGA AATTCAGA 3194 3852 GAAUUGCU A UGUGAAAC 867 GTTTCACA GGCTAGCTACAACGA AGCAATTC 3195 3854 AUUGCUAU G UGAAACUA 868 TAGTTTCA GGCTAGCTACAACGA ATAGCAAT 3196 3859 UAUGUGAA A CUACAGAU 869 ATCTGTAG GGCTAGCTACAACGA ATCACATA 3197 3862 GUGAAACU A CAGAUCUU 870 AAGATCTG GGCTAGCTACAACGA ATTCACATA 3198 3875 UCUUUGGA A CACUGUUU 871 TCCAAAGA GGCTAGCTACAACGA CTGTAGTT 3199 3875 UCUUUGGA A CACUGUUU 872 AAACAGTG GGCTAGCTACAACGA TCCAAAGA 3200 3877 UUUGGAAC A CUGUUUAG 873 CTAAACAG GGCTAGCTACAACGA GTTCCAAA 3201 3880 GGAACACU G UUUAGGUA 874 TACCTAAA GGCTAGCTACAACGA AGTGTTCC 3202 3886 CUGUUUAG G UAGGGUGU 875 ACACCCTA GGCTAGCTACAACGA CTAAACAG 3203 3891 UAGGUAGG G UGUUAAGA 876 TCTTAACA GGCTAGCTACAACGA CCTAACCA 3204 3893 GGUAGGGU G UUAAGACU 877 AGTCTTAA GGCTAGCTACAACGA ACCCTACC 3205 3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CCTAACAC 3206 3890 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CCTAACAC 3206 3891 AAGACUUG A CACAGUAC 879 GTACCTAG GGCTAGCTACAACGA CAAGTCTT 3207	3832	UAAAAAUC A CUAUGAUU	862	AATCATAG GGCTAGCTACAACGA GATTTTTA	3190
3846 AUUUCUGA A UUGCUAUG 865 CATAGCAA GGCTAGCTACAACGA TCAGAAAT 3193 3849 UCUGAAUU G CUAUGUGA 866 TCACATAG GGCTAGCTACAACGA AATTCAGA 3194 3852 GAAUUGCU A UGUGAAAC 867 GTTTCACA GGCTAGCTACAACGA AGCAATTC 3195 3854 AUUGCUAU G UGAAACUA 868 TAGTTTCA GGCTAGCTACAACGA ATAGCAAT 3196 3859 UAUGUGAA A CUACAGAU 869 ATCTGTAG GGCTAGCTACAACGA TTCACATA 3197 3862 GUGAAACU A CAGAUCUU 870 AAGATCTG GGCTAGCTACAACGA AGTTTCAC 3198 3875 UCUUUGGA A CACUGUUU 872 AAACAGTG GGCTAGCTACAACGA CTGTAGTT 3199 3875 UCUUUGGA A CACUGUUU 872 AAACAGTG GGCTAGCTACAACGA TCCAAAGA 3200 3877 UUUGGAAC A CUGUUUAG 873 CTAAACAG GGCTAGCTACAACGA GTTCCAAA 3201 3880 GGAACACU G UUUAGGUA 874 TACCTAAA GGCTAGCTACAACGA AGTGTTCC 3202 3886 CUGUUUAG G UAGGGUGU 875 ACACCCTA GGCTAGCTACAACGA CTAAACAG 3203 3891 UAGGUAGG G UGUUAAGA 876 TCTTAACA GGCTAGCTACAACGA CCTACCTA 3204 3893 GGUAGGGU G UUAAGACU 877 AGTCTTAA GGCTAGCTACAACGA ACCCTACC 3205 3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CTTAACAC 3206 3904 AAGACUUG A CACAGUAC 879 GTACCTGG GGCTAGCTACAACGA CATAACAC 3206	3835	AAAUCACU A UGAUUUCU	863	AGAAATCA GGCTAGCTACAACGA AGTGATTT	3191
3849 UCUGAAUU G CUAUGUGA 866 TCACATAG GGCTAGCTACAACGA AATTCAGA 3194 3852 GAAUUGCU A UGUGAAAC 867 GTTTCACA GGCTAGCTACAACGA AGCAATTC 3195 3854 AUUGCUAU G UGAAACUA 868 TAGTTTCA GGCTAGCTACAACGA ATAGCAAT 3196 3859 UAUGUGAA A CUACAGAU 869 ATCTGTAG GGCTAGCTACAACGA TTCACATA 3197 3862 GUGAAACU A CAGAUCUU 870 AAGATCTG GGCTAGCTACAACGA AGTTTCAC 3198 3866 AACUACAG A UCUUUGGA 871 TCCAAAGA GGCTAGCTACAACGA CTGTAGTT 3199 3875 UCUUUGGA A CACUGUUU 872 AAACAGTG GGCTAGCTACAACGA TCCAAAGA 3200 3877 UUUGGAAC A CUGUUUAG 873 CTAAACAG GGCTAGCTACAACGA GTTCCAAA 3201 3880 GGAACACU G UUUAGGUA 874 TACCTAAA GGCTAGCTACAACGA AGTGTTCC 3202 3886 CUGUUUAG G UAGGGUGU 875 ACACCCTA GGCTAGCTACAACGA CTAAACAG 3203 3891 UAGGUAGG G UGUUAAGA 876 TCTTAACA GGCTAGCTACAACGA CCTACCTA 3204 3893 GGUAGGGU G UUAAGACU 877 AGTCTTAA GGCTAGCTACAACGA CCTACCTA 3206 3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CAAGTCTT 3206	3838	UCACUAUG A UUUCUGAA	864	TTCAGAAA GGCTAGCTACAACGA CATAGTGA	3192
3852 GAAUUGCU A UGUGAAAC 867 GTTTCACA GGCTAGCTACAACGA AGCAATTC 3195 3854 AUUGCUAU G UGAAACUA 868 TAGTTTCA GGCTAGCTACAACGA ATAGCAAT 3196 3859 UAUGUGAA A CUACAGAU 869 ATCTGTAG GGCTAGCTACAACGA TTCACATA 3197 3862 GUGAAACU A CAGAUCUU 870 AAGATCTG GGCTAGCTACAACGA AGTTTCAC 3198 3866 AACUACAG A UCUUUGGA 871 TCCAAAGA GGCTAGCTACAACGA CTGTAGTT 3199 3875 UCUUUGGA A CACUGUUU 872 AAACAGTG GGCTAGCTACAACGA TCCAAAGA 3200 3877 UUUGGAAC A CUGUUUAG 873 CTAAACAG GGCTAGCTACAACGA GTTCCAAA 3201 3880 GGAACACU G UUUAGGUA 874 TACCTAAA GGCTAGCTACAACGA AGTGTTCC 3202 3886 CUGUUUAG G UAGGGUGU 875 ACACCCTA GGCTAGCTACAACGA CTAAACAG 3203 3891 UAGGUAGG G UGUUAAGA 876 TCTTAACA GGCTAGCTACAACGA CCTACCTA 3204 3893 GGUAGGGU G UUAAGACU 877 AGTCTTAA GGCTAGCTACAACGA ACCCTACC 3205 3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CTTAACAC 3206 3904 AAGACUUG A CACAGUAC 879 GTACTGTG GGCTAGCTACAACGA CAAGTCTT 3207	3846	AUUUCUGA A UUGCUAUG	865	CATAGCAA GGCTAGCTACAACGA TCAGAAAT	3193
3854 AUUGCUAU G UGAAACUA 868 TAGTTTCA GGCTAGCTACAACGA ATAGCAAT 3196 3859 UAUGUGAA A CUACAGAU 869 ATCTGTAG GGCTAGCTACAACGA TTCACATA 3197 3862 GUGAAACU A CAGAUCUU 870 AAGATCTG GGCTAGCTACAACGA AGTTTCAC 3198 3866 AACUACAG A UCUUUGGA 871 TCCAAAGA GGCTAGCTACAACGA CTGTAGTT 3199 3875 UCUUUGGA A CACUGUUU 872 AAACAGTG GGCTAGCTACAACGA TCCAAAGA 3200 3877 UUUGGAAC A CUGUUUAG 873 CTAAACAG GGCTAGCTACAACGA GTTCCAAA 3201 3880 GGAACACU G UUUAGGUA 874 TACCTAAA GGCTAGCTACAACGA AGTGTTCC 3202 3886 CUGUUUAG G UAGGGUGU 875 ACACCCTA GGCTAGCTACAACGA CTAAACAG 3203 3891 UAGGUAGG G UGUUAAGA 876 TCTTAACA GGCTAGCTACAACGA CCTACCTA 3204 3893 GGUAGGGU G UUAAGACU 877 AGTCTTAA GGCTAGCTACAACGA ACCCTACC 3205 3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CTTAACAC 3206	3849	UCUGAAUU G CUAUGUGA	866	TCACATAG GGCTAGCTACAACGA AATTCAGA	3194
3859 UAUGUGAA A CUACAGAU 869 ATCTGTAG GGCTAGCTACAACGA TTCACATA 3197 3862 GUGAAACU A CAGAUCUU 870 AAGATCTG GGCTAGCTACAACGA AGTTTCAC 3198 3866 AACUACAG A UCUUUGGA 871 TCCAAAGA GGCTAGCTACAACGA CTGTAGTT 3199 3875 UCUUUGGA A CACUGUUU 872 AAACAGTG GGCTAGCTACAACGA TCCAAAGA 3200 3877 UUUGGAAC A CUGUUUAG 873 CTAAACAG GGCTAGCTACAACGA GTTCCAAA 3201 3880 GGAACACU G UUUAGGUA 874 TACCTAAA GGCTAGCTACAACGA AGTGTTCC 3202 3886 CUGUUUAG G UAGGGUGU 875 ACACCCTA GGCTAGCTACAACGA CTAAACAG 3203 3891 UAGGUAGG G UGUUAAGA 876 TCTTAACA GGCTAGCTACAACGA CCTACCTA 3204 3893 GGUAGGGU G UUAAGACU 877 AGTCTTAA GGCTAGCTACAACGA ACCCTACC 3205 3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CTTAACAC 3206	3852	GAAUUGCU A UGUGAAAC	867	GTTTCACA GGCTAGCTACAACGA AGCAATTC	3195
3862 GUGAAACU A CAGAUCUU 870 AAGATCTG GGCTAGCTACAACGA AGTTTCAC 3198 3866 AACUACAG A UCUUUGGA 871 TCCAAAGA GGCTAGCTACAACGA CTGTAGTT 3199 3875 UCUUUGGA A CACUGUUU 872 AAACAGTG GGCTAGCTACAACGA TCCAAAGA 3200 3877 UUUGGAAC A CUGUUUAG 873 CTAAACAG GGCTAGCTACAACGA GTTCCAAA 3201 3880 GGAACACU G UUUAGGUA 874 TACCTAAA GGCTAGCTACAACGA AGTGTTCC 3202 3886 CUGUUUAG G UAGGGUGU 875 ACACCCTA GGCTAGCTACAACGA CTAAACAG 3203 3891 UAGGUAGG G UGUUAAGA 876 TCTTAACA GGCTAGCTACAACGA CCTACCTA 3204 3893 GGUAGGGU G UUAAGACU 877 AGTCTTAA GGCTAGCTACAACGA ACCCTACC 3205 3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CTTAACAC 3206 3904 AAGACUUG A CACAGUAC 879 GTACTGTG GGCTAGCTACAACGA CAAGTCTT 3207	3854	AUUGCUAU G UGAAACUA	868	TAGTITCA GGCTAGCTACAACGA ATAGCAAT	3196
3866 AACUACAG A UCUUUGGA 871 TCCAAAGA GGCTAGCTACAACGA CTGTAGTT 3199 3875 UCUUUGGA A CACUGUUU 872 AAACAGTG GGCTAGCTACAACGA TCCAAAGA 3200 3877 UUUGGAAC A CUGUUUAG 873 CTAAACAG GGCTAGCTACAACGA GTTCCAAA 3201 3880 GGAACACU G UUUAGGUA 874 TACCTAAA GGCTAGCTACAACGA AGTGTTCC 3202 3886 CUGUUUAG G UAGGGUGU 875 ACACCCTA GGCTAGCTACAACGA CTAAACAG 3203 3891 UAGGUAGG G UGUUAAGA 876 TCTTAACA GGCTAGCTACAACGA CCTACCTA 3204 3893 GGUAGGGU G UUAAGACU 877 AGTCTTAA GGCTAGCTACAACGA ACCCTACC 3205 3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CTTAACAC 3206	3859	UAUGUGAA A CUACAGAU	869	ATCTGTAG GGCTAGCTACAACGA TTCACATA	3197
3875 UCUUUGGA A CACUGUUU 872 AAACAGTG GGCTAGCTACAACGA TCCAAAGA 3200 3877 UUUGGAAC A CUGUUUAG 873 CTAAACAG GGCTAGCTACAACGA GTTCCAAA 3201 3880 GGAACACU G UUUAGGUA 874 TACCTAAA GGCTAGCTACAACGA AGTGTTCC 3202 3886 CUGUUUAG G UAGGGUGU 875 ACACCCTA GGCTAGCTACAACGA CTAAACAG 3203 3891 UAGGUAGG G UGUUAAGA 876 TCTTAACA GGCTAGCTACAACGA CCTACCTA 3204 3893 GGUAGGGU G UUAAGACU 877 AGTCTTAA GGCTAGCTACAACGA ACCCTACC 3205 3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CTTAACAC 3206	3862	GUGAAACU A CAGAUCUU	870	AAGATCTG GGCTAGCTACAACGA AGTTTCAC	3198
3877 UUUGGAAC A CUGUUUAG 873 CTAAACAG GGCTAGCTACAACGA GTTCCAAA 3201 3880 GGAACACU G UUUAGGUA 874 TACCTAAA GGCTAGCTACAACGA AGTGTTCC 3202 3886 CUGUUUAG G UAGGGUGU 875 ACACCCTA GGCTAGCTACAACGA CTAAACAG 3203 3891 UAGGUAGG G UGUUAAGA 876 TCTTAACA GGCTAGCTACAACGA CCTACCTA 3204 3893 GGUAGGGU G UUAAGACU 877 AGTCTTAA GGCTAGCTACAACGA ACCCTACC 3205 3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CTTAACAC 3206 3904 AAGACUUG A CACAGUAC 879 GTACTGTG GGCTAGCTACAACGA CAAGTCTT 3207	.3866	AACUACAG A UCUUUGGA	871	TCCAAAGA GGCTAGCTACAACGA CTGTAGTT	3199
3880 GGAACACU G UUUAGGUA 874 TACCTAAA GGCTAGCTACAACGA AGTGTTCC 3202 3886 CUGUUUAG G UAGGGUGU 875 ACACCCTA GGCTAGCTACAACGA CTAAACAG 3203 3891 UAGGUAGG G UGUUAAGA 876 TCTTAACA GGCTAGCTACAACGA CCTACCTA 3204 3893 GGUAGGGU G UUAAGACU 877 AGTCTTAA GGCTAGCTACAACGA ACCCTACC 3205 3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CTTAACAC 3206 3904 AAGACUUG A CACAGUAC 879 GTACTGTG GGCTAGCTACAACGA CAAGTCTT 3207	3875	UCUUUGGA A CACUGUUU	872	AAACAGTG GGCTAGCTACAACGA TCCAAAGA	3200
3886 CUGUUUAG G UAGGGUGU 875 ACACCCTA GGCTAGCTACAACGA CTAAACAG 3203 3891 UAGGUAGG G UGUUAAGA 876 TCTTAACA GGCTAGCTACAACGA CCTACCTA 3204 3893 GGUAGGGU G UUAAGACU 877 AGTCTTAA GGCTAGCTACAACGA ACCCTACC 3205 3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CTTAACAC 3206 3904 AAGACUUG A CACAGUAC 879 GTACTGTG GGCTAGCTACAACGA CAAGTCTT 3207	3877	UUUGGAAC A CUGUUUAG	873	CTAAACAG GGCTAGCTACAACGA GTTCCAAA	3201
3891 UAGGUAGG G UGUUAAGA 876 TCTTAACA GGCTAGCTACAACGA CCTACCTA 3204 3893 GGUAGGGU G UUAAGACU 877 AGTCTTAA GGCTAGCTACAACGA ACCCTACC 3205 3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CTTAACAC 3206 3904 AAGACUUG A CACAGUAC 879 GTACTGTG GGCTAGCTACAACGA CAAGTCTT 3207	3880	GGAACACU G UUUAGGUA	874	TACCTAAA GGCTAGCTACAACGA AGTGTTCC	3202
3893 GGUAGGGU G UUAAGACU 877 AGTCTTAA GGCTAGCTACAACGA ACCCTACC 3205 3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CTTAACAC 3206 3904 AAGACUUG A CACAGUAC 879 GTACTGTG GGCTAGCTACAACGA CAAGTCTT 3207	3886	CUGUUUAG G UAGGGUGU	875	ACACCCTA GGCTAGCTACAACGA CTAAACAG	3203
3899 GUGUUAAG A CUUGACAC 878 GTGTCAAG GGCTAGCTACAACGA CTTAACAC 3206 3904 AAGACUUG A CACAGUAC 879 GTACTGTG GGCTAGCTACAACGA CAAGTCTT 3207	3891	UAGGUAGG G UGUUAAGA	876	TCTTAACA GGCTAGCTACAACGA CCTACCTA	3204
3904 AAGACUUG A CACAGUAC 879 GTACTGTG GGCTAGCTACAACGA CAAGTCTT 3207	3893	GGUAGGGU G UUAAGACU	877	AGTCTTAA GGCTAGCTACAACGA ACCCTACC	3205
2006 CACHICAGA CACHAGA	3899	GUGUUAAG A CUUGACAC	878	GTGTCAAG GGCTAGCTACAACGA CTTAACAC	3206
3906 GACUUGAC A CAGUACCU 880 AGGTACTG GGCTAGCTACAACGA GTCAAGTC 3208	3904		879	GTACTGTG GGCTAGCTACAACGA CAAGTCTT	3207
	3906	GACUUGAC A CAGUACCU	880	AGGTACTG GGCTAGCTACAACGA GTCAAGTC	3208

4067 AACAAAG A UUUGUUUU 915 AAAACAAA GGCTAGCTACAACGA CTTTTGTT 3243 4071 AAAGAUU G UUUUUGUA 916 TACAAAAA GGCTAGCTACAACGA AAATCTTT 3244 4077 UUGUUUUU G UAGAGAUU 917 AATCTCTA GGCTAGCTACAACGA AAAACAA 3245 4083 UUGUAGAG A UUUUAAAG 918 CTTTAAAA GGCTAGCTACAACGA CTCTACAA 3246 4099 GGGGGAGA A UUCUAGAA 919 TTCTAGAA GGCTAGCTACAACGA TCTCCCCC 3247 4108 UUCUAGAA A UAAAUGUU 920 AACATTTA GGCTAGCTACAACGA TCTCAGAA 3248 4112 AGAAAUAA A UGUUACCU 921 AGGTAACA GGCTAGCTACAACGA TTCTAGAA 3249 4114 AAAUAAAU G UUACCUAA 922 TTAGGTAA GGCTAGCTACAACGA ATTTATTT 3250 4117 UAAAUGUU A CCUAAUUA 923 TAATTAGG GGCTAGCTACAACGA ATTTATTT 3251 4122 GUUACCUA A UUAUUACA 924 TGTAATAA GGCTAGCTACAACGA AACATTTA 3251 4125 ACCUAAUU A UUACAGCC 925 GGCTGTAA GGCTAGCTACAACGA AATTAGGT 3253 4128 UAAUUAUU A CAGCCUUA 926 TAAGGCTG GGCTAGCTACAACGA AATAATTA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAATAA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAATAA 3254 4140 CCUUAAAG A CAAAAAUC 928 GATTTTTG GGCTAGCTACAACGA CTTTAAGG 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTTGTCT 3257				The second secon	2200
3916   AGUACRO A COLUNICACA   883   TOTTGARAA GGTAGCTACAACGA GAGGATACT   3211	3909				
3922 DEQUUDUU A CACAGAGA 884 TETETETET GGCTAGCTACAACGA AGAAACGA 3212 3924 GUUUUUACA A CAGAGAAA 885 TITTETETE GGCTAGCTACAACGA AGAAACGA 3212 3936 AGAAAGAA HUGGCCAUA 886 ATTGCCTG GGCTAGCTACAACGA TITTETTC 3214 3937 AAGAAAGAA UGCGCAUA 886 ATTGCCTG GGCTAGCTACAACGA TITTETTC 3213 3939 AAGAAAGA A UGCACAUA 886 ATTGCCTG GGCTAGCTACAACGA CATTTCTT 3215 3944 ADGGCCAU A UUCUAGG 888 CTGAACTA GGCTAGCTACAACGA ATTGCCTT 3215 3944 AUGGCCAU A CUUCAGG 889 CTGAGAGG GGCTAGCTACAACGA ATGCCCAT 3215 3954 AUGGCCAU A CUUCAGG 889 CCTGAGA GGCTAGCTACAACGA ATGCCCAT 3217 3953 CUUCAGGA A CUGCAGUG 899 CACTGCAG GGCTAGCTACAACGA ATGCCCAT 3218 3955 CAGGAACU G CAGUGCUU 891 AAGCACTG GGCTAGCTACAACGA ATGCCCAT 3218 3956 CAGGACU G CAGUGCUU 891 AAGCACTG GGCTAGCTACAACGA ATGCCCAT 3219 3965 CAGGGCUU A UGAGAGGA 893 CTCATAACA GGCTAGCTACAACGA TCCACGA 3220 3973 AUGAGGGG A UUUUAGG 892 CTCATAACA GGCTAGCTACAACGA TCCACGT 3223 3975 CAGGGCAU A UUUUAGG 895 CCTAAATA GGCTAGCTACAACGA CACCCCCCAT 3223 3975 CAGGGGAU A UUUUAGGC 896 GGCCTAAATA GGCTAGCTACAACGA CACCCCCCA 3224 3981 AUGUUUAG C CUUUGA 897 TCAAAGAG GCCTAGCTACAACGA CTCAAATAT 3225 3990 CCUCUUGA A UUUUUGAU 898 ATCAAAAA GGCTAGCTACAACGA CTAAATAT 3225 3991 AUGUUUGAU C UGAGAGGA 899 ATCAAAAA GGCTAGCTACAACGA CTAAATAT 3227 3999 UUUUUGAU G UGAGAGGA 899 ATCAAAAA GGCTAGCTACAACGA CTAAATAT 3227 3999 UUUUUGAU G UGAGAUG 899 CCCACCTA GGCTAGCTACAACGA CTAAATAT 3227 3990 CUUUUGAU A UGUAGAUG 899 CCCACCTA GGCTAGCTACAACGA CTAAATAT 3227 4007 GUAGAGUG G CAUUUUUU 902 AAAAAATA GGCTAGCTACAACGA CTAAAAAA 3228 4007 GUAGAGUG G CAUUUUUU 902 AAAAAATA GGCTAGCTACAACGA CACAAAAA 3228 4008 UUUUGAU G UAGAGUG 901 AAACCACTA GGCTAGCTACAACGA CACACTAC 3230 4020 UUUUGAU G UAGAGUG 901 AAACCACTA GGCTAGCTACAACGA CACACTAC 3230 4020 UUUUGAU G UAGAGUG 901 AAACACAC GGCTAGCTACAACGA CACCACTAC 3230 4020 UUUUGAU G UAGAGUU 901 AAACACAC GGCTAGCTACAACGA CACCACTAC 3230 4021 UUAAGAGG G CUUUAUUU 902 AAAAAATA GGCTAGCTACAACGA CACTACTAC 3230 4020 UUAAGAGA G UUGAGAUU 902 AAAAAATA GGCTAGCTACAACGA CACTACTAC 3230 4021 UUAAGAGG G UUUAAUAC 906 GTAATATA GGCTAGCTACAACGA CACTACTAC 3230 4021 UUAA	3911				
3924 GUUUCUAC A CAGAGAAA 885 TITCTCTG GGCTAGCTACAACGA GTAGAAAC 3213 3936 AGAAAGAA A UGGCCAUA 886 TATGGCCA GGCTAGCTACAACGA TTCTTTCT 3215 3939 AAGABAUG G CAUDACUU 887 AAGTATGG GGCTAGCTACAACGA CTTCTTCT 3215 3942 AAAUGCCA UACUUCAGG 888 CTGAAGTA GGCTAGCTACAACGA CATTCTTT 3215 3944 AUGCCCAU A CUUCAGGA 889 TCCTGAAG GGCTAGCTACAACGA ATGGCAT 3216 3953 CUUCAGGA A CUUCAGGA 889 TCCTGAAG GGCTAGCTACAACGA ATGGCAT 3216 3955 CUUCAGGA A CUUCAGGA 889 TCCTGAAG GGCTAGCTACAACGA ATGGCAT 3217 3955 GAACUGCA G UGCUUUB 890 CATGAGCA GGCTAGCTACAACGA ATGGCAT 3219 3956 CAGGAACU G CAGUGCUU 891 AAGCACTG GGCTAGCTACAACGA ATGTCCTGA 3219 3957 AACUUCAGA A CUUCAGGA 892 CATAAGCA GGCTAGCTACAACGA ATGTCCTG 3220 3961 ACUCAGGU G CUUAUGAG 893 CTCATAAG GGCTAGCTACAACGA ACTGCAGT 3223 3973 AUGUCAGGU G CUUAUGAG 893 CTCATAAG GGCTAGCTACAACGA ACTGCAGT 3223 3975 AGGGGGAU A UUUAGGCC 896 GGCCTAAT GGCTAGCTACAACGA ACTGCAGT 3223 3976 AAGGGGGA UUUUAGGCC 896 GGCCTAAT GGCTAGCTACAACGA ACTGCAGT 3223 3980 CUUCUUGA UUUUGAGAC 897 TCAAGAGG GGCTAGCTACAACGA ATCCCCTC 3224 3981 AUAUUUAG G CCUCUUGA 897 TCAAGAGG GGCTAGCTACAACGA ATCCCCTC 3224 4003 UGCUUUUA A UUUUAGAU 898 TCAAAAA GGCTAGGTACAACGA ATCCCCTC 3224 4003 UGAGUGAG A UUUUAGAU 899 CATCTACA GGCTAGCTACAACGA TCAAAATAT 3227 4003 UGAGUGAG A UUUUAGAU 899 TACAAAAA GGCTAGCTACAACGA CCCCTACTA 3223 4004 AGAUGUAG A UGUUGAGU 899 CATCTACA GGCTAGCTACAACGA CAAAAATT 3227 4005 GUAGAUUG A UGAGAUGG 900 CCCATCTA GGCTAGCTACAACGA CCACTACA 3229 4007 GUAGAUGG G CAUUUUUU 901 AAAAAAA GGCTAGCTACAACGA CACAAAATT 3227 4008 AGAUGGGCAU 901 AAAAAAAA GGCTAGCTACAACGA CACACACA 3229 4009 AGAUGGGCAU 901 AAAAAAAA GGCTAGCTACAACGA CCACTAC 3229 4009 AGAUGGGG G UUAAUUAC 901 AAAAAAAA GGCTAGCTACAACGA CCCCCTCA 3230 4009 AGAUGGGG G UUAAUUAC 901 AAAAAAAA GGCTAGCTACAACGA CACACCAC 3224 4020 UUUUAAAG G UAGUUGA 903 TAAAAAAA GGCTAGCTACAACGA CACTACCA 3229 4021 AAGGAAAA AUCCUUAUA 903 TAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	3916	AGUACCUC G UUUCUACA	883		
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3999   AGARANGE   G.CALACUU   887   AGSTATGG GGCTAGCTACACGA CATTTCTT   3215	3924	GUUUCUAC A CAGAGAAA	885		
3919   3919	3936	AGAAAGAA A UGGCCAUA	886		
3944 ANGOCCAU A CUUCAGGA 889 TCCTGAAG GGCTAGCTACAGGA ATGGCCAT 3217 3953 CUUCAGGA A CUICAGGGA 889 CATGCAG GGCTAGCTACAAGGA ATCCTGAAG 3218 3955 CAGGACU G CAGUGCUU 891 AAGCACTG GGCTAGCTACAAGGA ATCCTGAAG 3218 3956 CAGGACU G CUULUGGG 892 CATAACCA GGCTAGCTACAAGGA ATTCCTG 3219 3957 GAACUGCA G UCUULUGG 892 CATAACCA GGCTAGCTACAAGGA TGCAGTTC 3221 3961 ACUGCAGU G CUULUGGAG 993 CTCATAAG GGCTAGCTACAAGGA ACTGCAGT 3221 3973 AUGAGGGG A UAUUUAGG 895 CCTAAATA GGCTAGCTACAACGA ACTGCAGT 3222 3973 AUGAGGGG A UAUUUAGGC 896 GGCCTAAA GGCTAGCTACAACGA ACCACTG 3223 3973 AUGAUUUAG CCUUCUUGA 897 TCAAGAGG GGCTAGCTACAACGA ACCACTG 3224 3981 AUUUUUGA UUUUUGAU 898 ATCAAAAA GGCTAGCTACAACGA CCCCTCAT 323 3990 CCUCUUGA 897 TCAAGAGG GGCTAGCTACAACGA CAAAATAT 3227 3991 UUUUUGAU G UAGAUGGG 990 CCCCATCTA GGCTAGCTACAACGA CAAAAATAT 3227 3991 UUUUUGAU G UAGAUGGG 990 CCCCATCTA GGCTAGCTACAACGA CAAAAATAT 3227 4003 UGAUGUAG U UUUUUUU 901 AATGCCCA GGCTAGCTACAACGA ATCAACAA 3228 4003 UGAUGUAG U UGGCAUU 901 AATGCCCA GGCTAGCTACAACGA ATCAACAA 3228 4007 GUAGAUGG G CAUUUUUU 902 AAAAAATG GGCTAGCTACAACGA CAACATCA 3230 4008 AGAUGGGC A UUUUUUUU 902 AAAAAATG GGCTAGCTACAACGA CCATCTC 3231 4009 AGAUGGG G UUUUUUUU 903 TAAAAAAA GGCTAGCTACAACGA CCATCTC 3231 4020 UUUUUAAAG G UAGUUGUU 903 TAAAAAAA GGCTAGCTACAACGA CCATCTC 3231 4020 UUUUUAAAG G UAGUUGUU 903 TAAAAAAA GGCTAGCTACAACGA CCATCTC 3231 4026 AGGUAGUA A UUACCUUU 907 AAACACTA GGCTAGCTACAACGA CCATCTC 3231 4026 AGGUAGUA A UUACCUUU 907 AAACACTA GGCTAGCTACAACGA CCATCCT 3231 4030 AGUGGUUA A UUACCUUU 907 AAACACTA GGCTAGCTACAACGA TACCACTA 3234 4040 AGGUAGUA A UUACCUUU 907 AAACACTA GGCTAGCTACAACGA ATCAATAA 3233 4026 AGGUAGUA A UUACCUUU 907 AAACACTA GGCTAGCTACAACGA ATCACTTA 3234 4030 AGUGGUUA A UUACCUUU 907 AAACACTA GGCTAGCTACAACGA ATCACTTA 3234 4041 ACCUUUU A UUGAACU 906 GTAATTAA GGCTAGCTACAACGA ATCACCT 3234 4050 UUUUCACGA UUUUAAAUA 905 CATAAAAGG GGCTAGCTACAACGA ATCACCT 3234 4051 UUACCUUU A UUGAACU 911 AAACACA GGCTAGCTACAACGA ATCACCT 3234 4052 AACUUUGA A UUACCUUU 910 AAACACTA GGCTAGCTACAACGA ATCACCT 3234 4051 UUACCUUU A UUGAACUU 911 AAA	3939	AAGAAAUG G CCAUACUU	887		
3953 CUUCAGGA A CUGCAGUG 890 CACTGCAG GGCTAGCTACAGGA TCCTGAAG 3218 3956 CAGGAACU G CAGUGCUU 891 AAGCACTG GGCTAGCTACAACGA AGTTCCTG 3219 3959 GAACUGCAG G UGCUUAUG 892 CATAAGCA GGCTAGCTACAACGA AGTTCCTG 3219 3951 ACUGCAGU G CUUAUGAG 892 CATAAGCA GGCTAGCTACAACGA ACTGCAGT 3221 3961 ACUGCAGU G CUUAUGAG 893 CTCATAAG GGCTAGCTACAACGA ACTGCAGT 3221 3965 CAGUGCUU A UGAGGGGA 894 TCCCCTCA GGCTAGCTACAACGA ACGCACTG 3222 3973 AUGAGGGG A UAUUUAGG 895 CCTAATAA GGCTAGCTACAACGA AAGCACTG 3222 3973 AUGAGGGG A UAUUUAGG 896 GGCCTAAA GGCTAGCTACAACGA ATCCCTC 3224 3981 AUAUUUGA UUUUGAG 897 TCAAGAG GGCTAGCTACAACGA CCCCTCAT 3223 3981 AUAUUUGA UUUUGAB 897 TCAAGAG GGCTAGCTACAACGA CTAAATAT 3225 3990 CCUCUUGA A UUUUUGAB 898 ATCAAAAA GGCTAGCTACAACGA CTAAATAT 3225 3991 UUUUUGAU G UAGAUGGG 900 CCCATCTA GGCTAGCTACAACGA CTAAAAAT 3226 4003 UGAUGUUG U UUUUUUU 902 AAAAAATG GGCTAGCTACAACGA CTAAAAAT 3228 4007 GUAGAUGG G CUUUUUUU 902 AAAAAATG GGCTAGCTACAACGA CTACATCA 3229 4009 AGAUGGGG A UUUUUUUU 902 AAAAAATG GGCTAGCTACAACGA CTACATCA 3229 4020 UUUUUAAG G UAGUUGUU 902 AAAAAATA GGCTAGCTACAACGA CCATCTCC 3231 4020 UUUUUAAG G UAGUUAUU 903 ATAAAAATA GGCTAGCTACAACGA CCATCTCC 3231 4021 UUAAGGUA G UAGUUAUU 905 ATAAAAATA GGCTAGCTACAACGA CCATCTCC 3231 4022 UUUUUAAG G UAGUUAAU 905 ATTAACCA GGCTAGCTACAACGA CCATCTCC 3231 4023 UUAAGGUA G UGGUUAAU 905 ATTAACCA GGCTAGCTACAACGA CCATCCT 3234 4033 GGUUAAUU A CCUUUAUG 907 AAAGGTAA GGCTAGCTACAACGA ACTACACT 3234 4034 GUUAAUUA C UUUAUGU 907 AAAGGTAA GGCTAGCTACAACGA ACTACCCT 3234 4035 GUUAAUU A CUUUAUG 908 CATAAAAG GGCTAGCTACAACGA ATAAACGA CAACAA ATAACCA TAACAA GGCTAGCTACAACGA ATAACCA TAACAA GGCTAGCTACAACGA ATAACCAT 3234 4041 ACCUUUAU A UGUGAACU 910 AAAGTTCA GGCTAGCTACAACGA ATAACCAT 3234 4052 ACACUUGA A UUACCAA 911 ATTCAAAG GGCTAGCTACAACGA ATAACCAT 3234 4051 AUAUGUUAA CAAAAAA GACTACAA GACTACCATAA 3234 4066 AUGUUAAA A UGUUACAA 911 ATTCTAAA GGCTAGCTACAACGA ATAACCAT 3234 4071 AAACAAAA AUGUUACA 912 AAAAATTTA GGCTAGCTACAACGA ATAACCAT 3242 4072 UUUGUAAAA AUGUUACA 911 ATTCTAAA GGCTAGCTACAACGA ATATCATT 3244 4071 AAAAAAAA UUCUUAAA 912 TTA	3942	AAAUGGCC A UACUUCAG	888	CTGAAGTA GGCTAGCTACAACGA GGCCATTT	
3956 CAGGRACU G CAGUGCUU 891 AAGCACTG GGCTAGCTACAACGA AGTTCCTG 3219 3959 GAACUGCA G UGCUULUGA 892 CATAAGCA GGCTAGCTACAACGA AGTCCAGT 3220 3961 ACUGCAGU G CUUAUGAG 893 CTCATAAG GGCTAGCTACAACGA ACGCAGT 3221 3973 AUGAGGGG A UAUUULAGG 895 CCTAAATA GGCTAGCTACAACGA ACGCACTG 3222 3973 AUGAGGGG A UAUUULAGG 895 CCTAAATA GGCTAGCTACAACGA AGCACTG 3222 3975 GAGGGGAU A UUUULGGC 895 GGCCTAAA GGCTAGCTACAACGA ATCCCCTC 3223 3981 AUAUULAG CCUCUUGA 897 TCAAGAAG GGCTAGCTACAACGA ATCCCCTC 3223 3990 CCUCUUGA A UUUUUGAU 898 ATCAAAAA GGCTAGCTACAACGA CTCAAATAT 3225 3991 AAUUUUGA UUGAGGGG 990 CCCATCTA GGCTAGCTACAACGA CTAAATAT 3225 4003 UGAUGUAG A UUUUUUGAU 901 AATGCCCA GGCTAGCTACAACGA CTAAATAT 3227 4007 GUAGAUGG G CAUUUUUU 902 AAAAAATG GGCTAGCTACAACGA CTACAACA 3229 4007 GUAGAUGG G CAUUUUUU 902 AAAAAATG GGCTAGCTACAACGA CTACAACA 3229 4020 UUUUUAAG G UUGUUUAA 993 TAAAAAAA GGCTAGCTACAACGA CATCAACA 3229 4020 UUUUUAAG G UUGUUUA 903 TAAAAAAA GGCTAGCTACAACGA CATCATCA 3230 4020 AGAUGGGC A UUUUUUUA 903 TAAAAAAA GGCTAGCTACAACGA CATCATCA 3230 4020 UUUUUAAG G UAGUUGUU 901 AACCACTA GGCTAGCTACAACGA CATCTACA 3230 4020 UUUUUAAG G UAGUUGUU 901 AACCACTA GGCTAGCTACAACGA CATCTACA 3231 4020 UUUUUAAG G UAGUUGUU 901 AACCACTA GGCTAGCTACAACGA CATCTACA 3231 4020 UUUUUAAG G UAAGUUGC 906 GTAATTAA GGCTAGCATCAACGA CATCTACA 3231 4021 UUAAGGUUA UUACCUUU 907 AAAGGTAA GGCTAGCATACAGA ATCACAT 3231 4031 GGUUAAUU A CUGUAAUA 905 GTAATTAA GGCTAGCACACAA ATCACAT 3234 4043 UUACCUUU A UGUGAACU 910 AAAGTTACA GGCTAGCATACACA ACTACCT 3234 4041 ACCUUUAA UGUGAACU 911 AAAGTTACA GGCTAGCATAACAGA ACTACAT 3234 4051 AACCACTA GGCTAGCAACGA AATAAACA 3234 4052 AACUUUAAG A UUGUUAAG 998 ACTAAAAG GGCTAGCAACGA AATAAACA 3234 4051 AACCACTA GGCTAGCAACGA AATAACAC 3236 4052 AACAATAA GGCTAGCAACGA AATAAACA 3239 4051 AACAAAAGA AUAAUUAAA 911 ATCATTTT GGCTAGCTACACGA ATAAACAT 3234 4061 AACCACAA GACAAAAGAU 911 ATCATCAA GGCTAGCAACGA ATAAACAA 3234 4071 AAAAAAAA AUAAUUGA 911 ATCATCTT GGCTAGCAACGA ATAAACAA 3234 4071 AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	3944	AUGGCCAU A CUUCAGGA	889		
3955   GRACUGCA G UGCUUAUG   892   CATRAGCA GGCTAGCTACAACGA TGCAGTTC   3220   3961   ACUGCAGU G CUUAUGAG   893   CTCATAAG GGCTAGCTACAACGA AAGCATGCAT   3221   3965   CAGUGCUU A UGAGGGGA   894   TCCCCTCA GGCTAGCTACAACGA AAGCATG   3222   3973   AUGAGGGG A UAUUUAGG   895   CCTAAATA GGCTAGCTACAACGA AAGCATC   3223   3975   GAGGGAU A UUUAGGCC   896   GGCCTAAA GGCTAGCTACAACGA ATCCCCTC   3224   3981   AUAUUUAG G CCUCUUGA   897   TCAAGAGG GGCTAGCTACAACGA ATCCCCTC   3224   3990   CUCCUUGA A UUUUGAU   898   ATCAAAAA GGCTAGCTACAACGA CTAAATAT   3225   3997   AAUUUUG A UGUAGAUG   899   CATCTACA GGCTAGCTACAACGA CTAAATAT   3227   3999   UUUUUGAU G UAGAGGGG   900   CCCATCTA GGCTAGCTACAACGA CTAAATAT   3227   4003   UGAUGUAG A UGGGCAUU   901   AATGCCCA GGCTAGCTACAACGA ATCAACAA   3228   4007   GUAGAUGG G CAUUUUUU   902   AAAAAATG GGCTAGCTACAACGA CTACATCA   3229   4009   AGAUGGGC A UUUUUUUUA   903   TAAAAAAA GGCTAGCTACAACGA CCATCTA   3230   4020   UUUUUAAG G UAGUGGUU   904   AACCACTA GGCTAGCTACAACGA CCATCTA   3231   4021   UUAUGAGU G UGGUUAAU   905   ATTAACCA GGCTAGCTACAACGA CCATCTA   3232   4022   UUAUGUAG G UAGUGGUU   905   ATTAACCA GGCTAGCTACAACGA CCATCCT   3234   4033   GGUAGUU A UUACCUUU   907   AAAGGTAA GGCTAGCTACAACGA CACTACCT   3234   4034   AGUGGUUA A UUACCUUU   907   AAAGGTAA GGCTAGCTACAACGA CACTACCT   3234   4035   GGUUAGUU A UGUGAACU   909   AGTTCACA GGCTAGCTACAACGA TAACCACC   3235   4040   UUACCUUU A UGUGAACU   909   AGTTCACA GGCTAGCTACAACGA CACTACCT   3234   4041   ACCUUUAU G UGAACAU   910   AAAGTTCA GGCTAGCTACAACGA AATTAACC   3236   4052   AACUUUGA A UUUCAAA   912   TTAAACA GGCTAGCTACAACGA AATTAACC   3236   4052   AACUUUGA A UUUACAA   912   TTAAACA GGCTAGCTACAACGA AATTAACC   3236   4051   UUAUGUGA A UUUCAAA   912   TTAAACA GGCTAGCTACAACGA AATTAACC   3236   4052   AACUUUGA A UUUACAAA   913   TTATAAAG GGCTAGCTACAACGA AATTAACC   3236   4051   AACAAAAAA A UUCUUAAA   912   TTAAACA GGCTAGCTACAACGA AATTAACC   3240   4051   AACAAAAAA A UUUUAAAA   912   TTAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	3953	CUUCAGGA A CUGCAGUG	890	CACTGCAG GGCTAGCTACAACGA TCCTGAAG	3218
3951 GARGOGAGU A UGAGGGGA 3965 CAGUGCUU A UGAGGGGA 3973 AUGAGGGG A UAUUUAGG 3973 AUGAGGGG A UAUUUAGG 3973 AUGAGGGG A UAUUUAGG 3973 AUGAGGGG A UAUUUAGG 3975 GAGGGGAU A UUUUAGG 3975 GAGGGGAU A UUUAGGC C 396 GGCTAAAA GGCTAGCTACAACGA CCCCTCAT 3223 3978 AUGAGGGG A UAUUUAGGC 3976 GGCCTAAAA GGCTAGCTACAACGA CTCCCCTC 3224 3981 AUAUUUAG C CCUCUUGA 897 TCAAGAGG GGCTAGCTACAACGA CTAAATAT 3225 3990 CCUCUUGA A UUUUUGAU 898 ATCAAAAA GGCTAGCTACAACGA CTAAATAT 3227 3991 UUUUUGAU G UGAGAUGG 899 CCCATCTA GGCTAGCTACAACGA CTAAAAAA 3997 AAUUUUUGA UGAGAUGG 899 CCCATCTA GGCTAGCTACAACGA ATCAAAAA 3997 UUUUUGAU G UAGAUGGG 900 CCCATCTA GGCTAGCTACAACGA ATCAAAAA 3999 UUUUUGAU G UAGAUGGG 900 CCCATCTA GGCTAGCTACAACGA ATCAAAAA 3228 4003 UGAUGUAG A UGGGCAUU 901 AATGCCCC GGCTAGCTACAACGA CTACATCA 3229 4007 GUAGAUGGG C AUUUUUUU 902 AAAAAATG GGCTAGCTACAACGA CCCATCTA 4009 AGAUGGGC A UUUUUUU 902 AAAAAATG GGCTAGCTACAACGA CCCATCTA 4020 UUUUUAAG G UAGUGGUU 904 AACCACTA GGCTAGCTACAACGA CCCATCTA 4020 UUUUUAAG G UAGUUGAU 905 ATTAACCA GGCTAGCTACAACGA CCCCATCT 3231 4026 AGGUAGUG G UUAAUUAC 906 GTAATTAA GGCTAGCTACAACGA ACCACACC 4030 AGUGGUU A UUACCUUU 907 AAAGGTAA GGCTAGCTACAACGA ACTACCT 3234 4033 GGUUAAUU A CCUUUAUG 908 CATAAAGG GGCTAGCTACAACGA AATTAACC 3236 4039 UUACCUUU A UGUAGAACU 907 AAAGGTAA GGCTAGCTACAACGA AATTAACC 3236 4039 UUACCUUU A UGUAGAACU 909 AGTTCACA GGCTAGCTACAACGA AATTAACC 3236 4045 UUAUGUGA A UUUGAAU 911 AAAGGTCA GGCTAGCTACAACGA AATTAACC 3236 4045 UUAUGUAA A UGUAGAACU 911 AATTCACA GGCTAGCTACAACGA AATTAACC 3236 4052 AACUUUGA A UUUGAACA 912 TTAAACCA GGCTAGCTACAACGA AATTAACC 3236 4051 UUACGAUG A CAAAAGGAU 911 AATTCACA GGCTAGCTACAACGA AATTAACC 3236 4052 AACUUUGA A UUGAACA 912 TTAAACA GGCTAGCTACAACGA CATCACAA 3239 4051 UUACGAUGA A UUGAACA 913 TTTCAAACA GGCTAGCTACAACGA CATCACAA 3240 4051 AACAAAAA A UGUUUACA 912 TTAAACAA GGCTAGCTACAACGA CATTCAAA 3241 4067 AACAAAAA A UUUUAAAA 912 TTATAAAA GGCTAGCTACAACGA CATTCAAA 3241 4067 AACAAAAA A UUUUUUU 915 AAACTCTT GGCTAGCTACAACGA CATTCATAA 3241 4077 UUGUUUUA GAAACA 913 TTTTATAA GGCTAGCTACAACGA AATATATT 3243 407	3956	CAGGAACU G CAGUGCUU	891	AAGCACTG GGCTAGCTACAACGA AGTTCCTG	3219
3965 CAGUGCUU A UGAGGGGA 894 TCCCCTCA GGCTAGCTACAACGA AAGCACTG 3222 3973 AUGAGGGG A UAUUUAGGC 895 CCTAAATA GGCTAGCTACAACGA CCCCTCAT 3223 3975 GAGGGGAU A UUUAGGC 896 GGCCTAAA GGCTAGCTACAACGA CCCCTCAT 3223 3981 AUAUNUAG C CCUCUUGA 897 TCAAGAGG GGCTAGCTACAACGA CTCACCTC 3224 3981 AUAUNUAG C CCUCUUGA 897 TCAAGAGG GGCTAGCTACAACGA CTAAATAT 3225 3990 CCUCUUGA A UUUUGAU 898 ATCAAAAA GGCTAGCTACAACGA CTAAATAT 3225 3990 UUUUUGAU G UAGAUGGG 990 CACTACCA GGCTAGCTACAACGA CAAAAATT 3227 4003 UGAUGUGA A UGUAGAUGG 990 CACTACCA GGCTAGCTACAACGA CAAAAATT 3227 4003 UGAUGUGA A UGUAGAUGG 990 CACTACCA GGCTAGCTACAACGA CAAAAATA 3228 4003 UGAUGUGA A UGUUUUU 901 AATGCCCA GGCTAGCTACAACGA CTACACCA 3229 4007 GUAGAUGGG C CAUUUUU 902 AAAAAATG GGCTAGCTACAACGA CCACTCA 3230 4009 AGAUGGGC A UUUUUUUA 903 TAAAAAAA GGCTAGCTACAACGA CCCATCT 3234 4020 UUUUUAGAU G UAGUGGGU 904 AACCACTA GGCTAGCTACAACGA CCCATCT 3234 4021 UUAAGGUA G UGGUUAAU 905 ATTAACCA GGCTAGCTACAACGA CCCATCT 3234 4022 UUAAGGUA G UGGUUAAU 905 ATTAACCA GGCTAGCTACAACGA CCTACACCA 3230 4023 UUAAGGUU A UUACCUUU 907 AAAGGTAA GGCTAGCTACAACGA CACTACCT 3234 4030 AGUGGUU A UUACCUUU 907 AAAGGTAA GGCTAGCTACAACGA CACTACCT 3234 4031 GGUUAAUU A CCUUUAUG 908 CATAAAAG GGCTAGCTACAACGA CACTACCT 3234 4032 UUACCUUU A UGUAGACU 909 AGTTCACA GGCTAGCTACAACGA AATTAACC 3236 4033 UUACCUUU A UGUAGACU 909 AGTTCACA GGCTAGCTACAACGA AATTAACC 3236 4039 UUACCUUU A UGUAGACU 910 AAAGTTCA GGCTAGCTACAACGA AATTAACC 3236 4045 UUAUGUGA A UUGUAUA 912 TTAAACCA GGCTAGCTACAACGA CACTACCT 3234 4046 AGAAAAG A UUUGAAAU 911 AATCAAAA GGCTAGCTACAACGA CATTACCAC 3236 4052 AACUUUGA A UGGUUUAA 912 TTAAACCA GGCTAGCTACAACGA CATTACACCA 3234 4051 AUACCUUU A UGUACAAU 911 AATCAAAG GGCTAGCTACAACGA CATTACAA 3241 4067 AACAAAAG A UUUUAGAA 912 TTAAACCA GGCTAGCTACAACGA CATTACAA 3241 4067 AACAAAAG A UUUUAAAA 912 TTAAACAA GGCTAGCTACAACGA CATTACAA 3241 4068 AUGGUAAA A CAAAAGAU 914 AACCATTA GGCTAGCTACAACGA ATTAAACCA 3244 4069 AGGGGACA A UUCUAAA 912 TTAAACAA GGCTAGCTACAACGA ATAACCA 3244 4069 AGGGAAAAA A UUCUAAA 922 TTAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	3959	GAACUGCA G UGCUUAUG	892	CATAAGCA GGCTAGC1ACAACGA TGCAGTTC	3220
3973 AUGAGGGG A UAUUUAGGC 895 CCTAAATA GGCTAGCTACAACGA CCCCTCAT 3223 3975 GAGGGGAU A UUUUAGGCC 897 TCAAAGAG GGCTAGCTACAACGA ATCCCCTC 3224 3981 AUAUUUAG C CCUCUUGA 897 TCAAAGAG GGCTAGCTACAACGA ATCCCCTC 3224 3990 CCUCUUGA A UUUUUGAU 898 ATCAAAAA GGCTAGCTACAACGA TCAAAGAG 3226 3997 AAUUUUG A UGUAGAUG 899 CATCTACA GGCTAGCTACAACGA TCAAAGAG 3226 4003 UGAUGUAG U UAGAUGG 900 CCCATCTA GGCTAGCTACAACGA ATCAAAAA 3228 4003 UGAUGUAG A UGGGCAUU 901 AATGCCCA GGCTAGCTACAACGA CTACATCA 3229 4007 GUAGAUGG G CAUUUUUU 902 AAAAAATG GGCTAGCTACAACGA CTACATCA 3230 4009 AGAUGGGC A UUUUUUUA 903 TAAAAAAA GGCTAGCTACAACGA CTACATCA 3230 4020 UUUUUAAG G UAGUGGUU 904 AACCACTA GGCTAGCTACAACGA CCCATCTC 3231 4021 UUUUAAGG G UAGUGGUU 904 AACCACTA GGCTAGCTACAACGA CCCATCTA 3231 4022 UUUUUAAG G UAGUGGUU 904 AACCACTA GGCTAGCTACAACGA CCCATCTA 3231 4023 UUAAGGUA G UGGUUAAU 905 ATTAACCA GGCTAGCTACAACGA TACCTATA 3233 4026 AGGUAGUU A UUACCUUU 907 AAAGGTAA GGCTAGCAACGA TACCTATA 3233 4027 AGUUAUUU A UCUUAUG 906 GTAATTAA GGCTAGCAACGA TACCTATA 3233 4033 AGGUUAAUU A CCUUUAUG 907 AAAGGTAA GGCTAGCAACGA TACCTACT 3234 4039 AGUGGUUA A UUACCUUU 907 AAAGGTAA GGCTAGCAACGA ATATAACC 4039 UUACCUUU A UGUGAACU 909 AGTTCACA GGCTAGCTACAACGA ATATAACC 4041 ACCUUUAU G UGAACUUU 910 AAAGTTCA GGCTAGCTACAACGA AAAAGGTA 3236 4041 ACCUUUAU G UGAACUUU 910 AAAGTTCA GGCTAGCTACAACGA AAAAGGTA 3234 4052 AACUUUGA A UUGUAAAA 912 TTAAACCA GGCTAGCTACAACGA ATAAAGGT 3236 4052 AACUUUGA A UGGUUUAAA 912 TTAAACCA GGCTAGCTACAACGA TAACCACT 3234 4060 AUGGUUUA A CAAAAGAU 914 ATCTTTTG GGCTAGCAACGA ATAAAGGT 3240 4067 AACAAAAA UUUUUGUA 915 AAAAGAAA GGCTAGCTACAACGA TAAACCAT 3241 4060 AUGGUUUA A CAAAAGAU 914 ATCTTTTG GGCTAGCAACGA TAAACCAT 3242 4067 AACAAAAA UUUUUAAAA 912 TTAAACCA GGCTAGCTACAACGA TACCATAA 3234 4060 AUGGUUUA A CAAAAGAU 917 AATCTTTT GGCTAGCAACGA ATAAACAA 3241 4071 AAAGAUUU G UUUUUAAAA 912 TTAAACCA GGCTAGCTACAACGA TATACCACT 3242 4067 AACAAAAA A UUCUUAAAA 913 TTGTTAAA GGCTAGCTACAACGA TATACCACT 3244 4060 AUGGUUUA A CAAAAGAU 917 TAATAACCA GGCTAGCTACAACGA TATACCACA 3241 4071 UUAAAUGA A UAACUUAAAA 913 TT	3961	ACUGCAGU G CUUAUGAG	893	CTCATAAG GGCTAGCTACAACGA ACTGCAGT	3221
3975   GAGGGGAU A UUUUGGCC   896   GGCCTAAA GGCTAGCTACAAGGA ATCCCCTC   3224   3981   AUAUUUGG C CCUCUUGA   897   TCAAGAGG GGCTAGCTACAAGGA CTAAATAT   3225   3990   CCUCUUGA A UUUUUGAU   898   ATCAAAAA GGCTAGCTACAACGA CTAAATAT   3225   3997   AAUUUUUGA UGUAGAUG   899   CATCTACA GGCTAGCTACAACGA CTAAAAAA   3226   3997   AAUUUUUGA UGUAGAUG   899   CATCTACA GGCTAGCTACAACGA CAAAAAA   3228   4003   UGAUGUAG A UGUGGGG   900   CCCATCTA GGCTAGCTACAACGA ATCAAAAA   3228   4003   UGAUGUAG A UGGGCAUU   901   AATGCCCA GGCTAGCTACAACGA CTACATCA   3229   4007   GUAGAUGG G CAUUUUUU   902   AAAAAATG GGCTAGCTACAACGA CCCATCTA   3231   4020   UUUUUAAG G UAGUUGUU   903   TAAAAAAA GGCTAGCTACAACGA CCCATCTA   3231   4020   UUUUUAAGG G UAGUUGUU   904   AACCACTA GGCTAGCTACAACGA CCCATCTAC   3231   4022   UUAAGGUA G UGGUUAAU   905   ATTAACCA GGCTAGCTACAACGA CCCATCCT   3231   4023   UUAAGGUA G UUGUUUUA   906   GTAATTAA GGCTAGCTACAACGA CACTACCT   3234   4030   AGUGGUUA A UUACCUUU   907   AAAGGTAA GGCTAGCTACAACGA CACTACCT   3234   4031   AGUUUAUA   GUGAACUU   907   AAAGGTAA GGCTAGCTACAACGA ATTAACCC   3236   4039   UUACCUUU A UGUGAACU   909   AGTTCACA GGCTAGCTACAACGA ATTAACCC   3236   4041   ACCUUUAU G UGAACUU   910   AAAGTTCA GGCTAGCTACAACGA ATAAAGGTAA   3237   4041   ACCUUUAG A UGGUUUAA   912   TTAAACCA GGCTAGCTACAACGA ATAAAGGTAA   3237   4045   UUAUGUGA A UUGUAUAU   912   ATTCAAAG GGCTAGCTACAACGA ATAAAGGT   3240   4052   AACUUUGA A UGGUUUAA   912   TTAAACGA GGCTAGCTACAACGA ATAAAGGT   3240   4052   AACUUUGA A UGUUUAAAA   913   TTGTTAAA GGCTAGCTACAACGA ATAAAGGT   3240   4052   AACUUUGA A UGUUUUAA   914   ATCTTTTG GGCTAGCAACGA ATAAAGGT   3240   4052   AACUUUGA A UGUUUUAAAA   913   TTGTAAAA GGCTAGCTACAACGA CATTCACATA   3241   4067   AACAAAAGA A UUUGAAUA   912   TTAAACGA GGCTAGCTACAACGA ATAAAGGT   3240   4067   AACAAAAGA A UUUGUAAAA   913   TTGTAAAA GGCTAGCTACAACGA CATTCAAA   3241   4067   AACAAAAGA A UUUGUAAAA   913   TTGTAAAA GGCTAGCTACAACGA ATATTTT   3244   4067   AACAAAAGA A UUUUUAAAA   914   ATCTTTTA GGCTAGCTACAACGA ATATTTTT   3244   4067	3965	CAGUGCUU A UGAGGGGA	894	TCCCCTCA GGCTAGCTACAACGA AAGCACTG	3222
3991         AUADUUUAG G CCUCUUGA         897         TCAAGAGG GGCTAGCTACAACGA CTAAATAT         3225           3990         CCUCUUGA A UUUUUGAU         898         ATCAAAAA GGCTAGCTACAACGA CTAAATAT         3226           3997         AAUUUUUG A UGUAGAUG         899         CATCTACA GGCTAGCTACAACGA CTAAAATAT         3227           3999         UUUUUGAU G UAGAUGGG         900         CCCATCTA GGCTAGCTACAACGA CTACATCA         3229           4003         UGAGUGG G CAUUUUUU         901         AATACCCA GGCTAGCTACAACGA CCATCTAC         3229           4007         GUAGAUGG G CAUUUUUU         902         AAAAAATG GGCTAGCTACAACGA CCATCTAC         3230           4009         AGAUGGG C AUUUUUUU         903         TAAAAAAA GGCTAGCTACAACGA CCATCTAC         3231           4020         UUUUUAAG G UAGUGGUU         904         AACCACTA GGCTAGCTACAACGA CCATCTAA         3231           4026         AGGUAGUG G UUUAUUUU         905         ATTAACCA GGCTAGCTACAACGA CATCACCT         3234           4026         AGGUAGUU A UUUCAUUU         907         AAAGTTAA GGCTAGCTACAACGA TACACCT         3234           4031         AGUGUUA A UUUCAUUU         907         AAGTTACA GGCTAGCTACAACGA ATTAACC         3236           4032         UUUCAUUU A UUUGAUU         908         CATAAAGG GGCTAGCTACAACGA ATTAACCA         3237	3973	AUGAGGGG A UAUUUAGG	895	CCTAAATA GGCTAGCTACAACGA CCCCTCAT	3223
3990   CCUCUUGA A UUUUUGAU   898   ATCAAAAA GCTAGCTACAACGA TCAAGAGG   3226   3297   AAUUUUUGA U UGUAGAUG   899   CATCTACA GGCTAGCTACAACGA CAAAAAATT   3227   3299   UUUUUGAU G UAGAUGG   900   CCCATCTA GGCTAGCTACAACGA ATCAAAAA   3228   4003   UGAUGUAG A UGGGCAUU   901   AATGCCCA GGCTAGCTACAACGA CTACATCA   3229   4007   GUAGAUGG G CAUUUUUU   902   AAAAAATG GGCTAGCTACAACGA CCATCTAC   3230   4020   UUUUUUAAG G UAGUGGUU   904   AACCACTA GGCTAGCTACAACGA CCATCTAC   3231   4020   UUUUUUAAG G UAGUGGUU   905   ATTAACCA GGCTAGCTACAACGA CCTTAAAAA   3232   4023   UUAAGGUU G UUAUUUAC   906   GTAATTAA GGCTAGCTACAACGA CCTTAAAA   3234   4026   AGGUAGUG G UUAAUUAC   906   GTAATTAA GGCTAGCTACAACGA CACTACCT   3234   4026   AGGUAGUU A UUACCUUU   907   AAAGGTAA GGCTAGCTACAACGA CACTACCT   3234   4030   AGUGGUUA A UUACCUUU   907   AAAGGTAA GGCTAGCTACAACGA CACTACCT   3234   4033   GGUUAAUU A CCUUUAUG   908   CATAAAGG GGCTAGCTACAACGA AATTAACC   3236   4039   UUACCUUU A UGUGAACU   909   AATTACCA GGCTAGCTACAACGA AATTAACC   3236   4041   ACCUUUAU G UGAACUUU   910   AAAGTTCA GGCTAGCTACAACGA AATAAGCT   3237   4041   ACCUUUAU G UGAACUUU   911   ATTCAAAG GGCTAGCTACAACGA ATAAAGGT   3238   4045   UUAUGUGA A UUUACCAA   911   ATTCAAAG GGCTAGCTACAACGA ATAAAGGT   3238   4052   AACUUGA A UGGUUUAA   912   TTAAACCA GGCTAGCTACAACGA TAAACAT   3240   4055   UUUGAAGA   0104	3975	GAGGGGAU A UUUAGGCC	896	GGCCTAAA GGCTAGCTACAACGA ATCCCCTC	3224
3997	3981	AUAUUUAG G CCUCUUGA	897	TCAAGAGG GGCTAGCTACAACGA CTAAATAT	3225
3997         AAUUUUUG A UGUAGAUG         899         CATCTACA GGCTAGCTACAACGA CAAAAATT         3227           3999         UUUUUGAU G UAGAUGGG         900         CCCATCTA GGCTAGCTACAACGA ATCAAAAA         3228           4003         UGAUGUAG A UGGGCAUU         901         AATGCCCA GGCTAGCTACAACGA CTACATCA         3229           4007         GUAGAUGG G CAUUUUU         902         AAAAATG GGCTAGCTACAACGA CCATCTAC         3230           4009         AGAUGGGC A UUUUUUAA         903         TAAAAAAA GGCTAGCTACAACGA CCTAAAAA         3232           4020         UUUAAGGUA G UGGUUAAU         904         AACCACTA GGCTAGCTACAACGA CTAAAAAA         3232           4023         UUAAGGUA G UGGUUAAU         905         ATAAACA GGCTAGCTACAACGA TACCTTAA         3233           4030         AGUGGUUA A UUACCUUU         906         GTAATTAA GGCTAGCTACAACGA TACCACT         3234           4031         AGUGGUAAU A CCUUUAUG         908         CATAAAGG GGCTAGCTACAACGA ATTAAACC         3236           4039         UUACCUUU A UGGAACUU         909         AGTCCACA GGCTAGCTACAACGA ATTAAACC         3236           4041         ACCUUUAU G UGAACUU         910         AAAGTTCA GGCTAGCTACAACGA TCAAACTA         3239           4052         AACUUUA A UUUGAAA         912         TTAAACCA GGCTAGCTACAACGA TCAAACTA         3243<	3990	CCUCUUGA A UUUUUGAU	898	ATCAAAAA GGCTAGCTACAACGA TCAAGAGG	3226
4003         UGAUGUAG A UGGGCAUU         901         AATGCCCA GGCTAGCTACAACGA CTACATCA         3229           4007         GUAGAUGG G CAUUUUUU         902         AAAAAATG GGCTAGCTACAACGA CCATCTAC         3230           4009         AGAUGGGC A UUUUUUUAA         903         TAAAAAAA GGCTAGCTACAACGA GCCCATCT         3231           4020         UUUUUAAG G UAGUUGUU         904         AACCACTA GGCTAGCTACAACGA CTCATCAA         3232           4023         UUAAGGUA G UGGUUAAU         905         ATTAACCA GGCTAGCTACAACGA TACCCTTAA         3233           4026         AGGUAGUG G UUAAUUAC         906         GTAATTAA GGCTAGCTACAACGA TACCACCT         3234           4030         AGUGGUUA A UUACCUUU         907         AAAGGTAA GGCTAGCTACAACGA TACACCT         3235           4033         GGUIAAUU A CCUUUAUG         908         CATAAAGG GGCTAGCTACAACGA AATTAACC         3236           4039         UUACCUUU A UGUGAACU         909         AATCTACAC GGCTAGCTACAACGA ATTAAAGGT         3238           4041         ACCUUUAU G UGAACUU         910         AAAGTTCA GGCTAGCTACAACGA TACAAGATA         3239           4052         AACUUUGA A UGGUUUAA         912         TTAAACCA GGCTAGCTACAACGA TACAAGTA         3240           4055         UUUGAAGA         913         TTGTTAAA GGCTAGCTACAACGA CATTCAAA         3241 <td>3997</td> <td>AAUUUUUG A UGUAGAUG</td> <td>899</td> <td>CATCTACA GGCTAGCTACAACGA CAAAAATT</td> <td>3227</td>	3997	AAUUUUUG A UGUAGAUG	899	CATCTACA GGCTAGCTACAACGA CAAAAATT	3227
4007         GUAGAUGG G         CAUUJUUU         902         AAAAAATG GGCTAGCTACAACGA CCATCTAC         3230           4009         AGAUGGC A         UUUUUUAA         903         TAAAAAAA GGCTAGCTACAACGA GCCCATCT         3231           4020         UUUUUAAG G         UAGUGGUU         904         AACCACTA GGCTAGCTACAACGA CCTTAAAAA         3232           4023         UUAAGGUA G         UGUUUAU         905         ATTAACCA GGCTAGCTACAACGA CACTACCT         3233           4026         AGGUAGUA A         UUACCUUU         907         AAAGATAA         GGCTAGCTACAACGA TACCACT         3235           4033         AGUGGUA A         UUACCUUU         907         AAAGTAA         GGCTAGCTACAACGA AATAACC         3236           4039         UUACCUUU A         UGUACUUU         909         AGTTCACA         GGCTAGCTACAACGA AAAGGTAA         23236           4041         ACCUUUAU G         UGAACUUU         910         AAAGTTCA         GGCTAGCTACAACGA ATAAAGGT         3238           4052         AACUUGA A         UUUGAAU         911         ATTCAAAG         GGCTAGCTACAACGA TCAAAGGT         3240           4055         UUUGAAUG G         UUUAACAA         913         TTGTTAAA         GGCTAGCTACAACGA CATTCAAA         3241           4060         AUGGUUA A	3999	UUUUUGAU G UAGAUGGG	900	CCCATCTA GGCTAGCTACAACGA ATCAAAAA	3228
4007         GUAGAUGG G CAUUUUUU         902         AAAAAATG GGCTAGCTACAACGA CCATCTAC         3230           4009         AGAUGGGC A UUUUUUUA         903         TAAAAAAA GGCTAGCTACAACGA GCCCATCT         3231           4020         UUUUUUAAG G UAGUGGUU         904         AACCACTA GGCTAGCTACAACGA CTTAAAAA         3232           4023         UUAAGGUA G UGGUUAAU         905         ATTAACCA GGCTAGCTACAACGA TACCTTAA         3233           4030         AGUGGUG G UUAAUUAC         906         GTAATTAA GGCTAGCTACAACGA TACCACT         3234           4031         AGUGGUUA A UUACCUUU         907         AAAGTAA GGCTAGCTACAACGA AATTAACC         3235           4033         GGUAAUU A CCUUUAUG         908         CATAAAGG GGCTAGCTACAACGA AAAGGTAA         3237           4041         ACCUUUAU G UGAACUU         910         AAAGTTCA GGCTAGCTACAACGA AAAGGTAA         3237           4045         UUAGUGA A CUUUGAU         911         AATCAAAGGG GCTAGCTACAACGA TAAAAGGT         3238           4052         AACUUAA A UGGUUAA         911         ATTCAAAG GGCTAGCTACAACGA TCAAAGT         3240           4055         UUUGAAUG G UUUAACAA         913         TIGTTAAA GGCTACCACGA TAAACCAT         3244           4060         AUGGUUA A CAAAAGAU         914         ATCTTTTG GGCTACCACGA TAACCAT         3243 <td>4003</td> <td>UGAUGUAG A UGGGCAUU</td> <td>901</td> <td>AATGCCCA GGCTAGCTACAACGA CTACATCA</td> <td>3229</td>	4003	UGAUGUAG A UGGGCAUU	901	AATGCCCA GGCTAGCTACAACGA CTACATCA	3229
4009         AGAUGGGC         A UUUUUUUA         903         TAAAAAAA GGCTAGCTACAACGA GCCCATCT         3231           4020         UUUUUAAG G UAGUGGUU         904         AACCACTA GGCTAGCTACAACGA CTTAAAAA         3232           4023         UUAAGGUA G UGGUUAAU         905         ATTAACCA GGCTAGCTACAACGA TACCTTAA         3233           4026         AGGUAGUG G UUAAUUAC         906         GTAATTAA GGCTACAACGA TAACCACT         3234           4030         AGUGGUUA A UUACCUUU         907         AAAGGTAA GGCTACAACGA AATTAACC         3236           4039         UUACCUUU A UGUGAACU         908         CATAAAGG GGCTAGCTACAACGA AATAAAGGT         3237           4041         ACCUUUAU G UGAACUU         910         AAAGTTCA GGCTAGCTACAACGA AAAGGTAA         3237           4045         UUAUGGA A CUUUGAAU         911         ATTAAACCA GGCTAGCTACAACGA ATAAAGGT         3234           4052         AACUUGA A UGGUUUAA         912         TTAAACCA GGCTAGCTACAACGA CATCAAAGT         3240           4055         UUUGAAUG G UUUAACAA         913         TTGTTAAA GGCTAGCTACAACGA CATCAAA         3241           4067         AACAAAGA         UUGUACAA         913         TTGTTAAA         GGCTAGCTACAACGA CATCTACAA           4071         DUGUAGAG         UUUUUAACAA         913         TTGTTAAA		GUAGAUGG G CAUUUUUU	902	AAAAAATG GGCTAGCTACAACGA CCATCTAC	3230
4020         UUUUUJAAG G UAGUGGUU         904         AACCACTA GGCTAGCTACAACGA CTTAAAAA         3232           4023         UUAAGGUA G UGGUUAAU         905         ATTAACCA GGCTAGCTACACCA TACCTTAAA         3233           4026         AGGUAGUG G UUAAUUAC         906         GTAATTAA GGCTAGCTACAACGA TACCTACCT         3234           4030         AGUGGUUA A UUACCUUU         907         AAAGGTAA GGCTAGCTACAACGA TAACCACT         3235           4033         GGUAAUU A CCUUUAUG         908         CATAAAGG GGCTAGCTACAACGA AATTAACC         3236           4039         JUJACCUUU A UGUGAACU         909         AGTTCACA GGCTAGCTACAACGA AAAGGTAA         3237           4041         ACCUUUAU G UGAACUUU         910         AAAGTTCA GGCTAGCACACGA ATAAAGGT         3238           4045         UUAUGUGA A CUUUGAAU         911         ATTCAAAG GGCTAGCTACAACGA TCAAAGT         3239           4052         AACUUUGA A UGGUUUAA         912         TTAAACCA GGCTAGCTACAACGA CATTCAAA         3241           4065         UUUGAAUG G UUUAACAA         913         TTGTTAAA GGCTAGCTACAACGA CATTCAAA         3241           4067         AACAAAAG A UUUGUUU         915         AAACAAAA GGCTACAACGA CTTTGTT         3242           4067         AACAAAAA A UUUUUAAAG         916         TACAAAAA GGCTACAACGA AAAACCA         2347			903	TAAAAAA GGCTAGCTACAACGA GCCCATCT	3231
4023         UUAAGGUA G UGGUUAAU         905         ATTAACCA GGCTAGCTACAACGA TACCTTAA         3233           4026         AGGUAGUG G UUAAUUAC         906         GTAATTAA GGCTAGCTACAACGA CACTACCT         3234           4030         AGUGGUUA A UUACCUUU         907         AAAGGTAA GGCTAGCTACAACGA TAACCACT         3235           4033         GGUUAAUU A CCUUUAUG         908         CATAAAGG GGCTAGCTACAACGA AATTAACC         3236           4039         UUACCUUU A UGUGAACU         909         AGTTCACA GGCTAGCTACAACGA ATGAATAACGT         3237           4041         ACCUUUAU G UGAACUUU         910         AAAGTTCA GGCTAGCTACAACGA ATGAATAAAGGT         3238           4045         UUUGUGA A UGGUUUAA         912         TTAAACCA GGCTAGCTACAACGA TCAACGA         3239           4052         AACUUGA A UGGUUUAA         912         TTAAACCA GGCTAGCTACAACGA TCAACGA         240           4055         UUUGAAUG G UUUAACAA         913         TTGTTAAA GGCTAGCTACAACGA TAAACCAT         3242           4067         AACAAAAG A UUUGUUUU         915         AAAACAAA GGCTAGCTACAACGA TATCTTT         3244           4071         AAAGAUU G UUUUUGUA         916         TACAAAAA GGCTAGCTACAACGA AAATCTTT         3244           4077         UUGUUGAA         918         CTTTAAAA GGCTAGCTACAACGA ATCTTCAACGA         3246 <td></td> <td></td> <td>904</td> <td>AACCACTA GGCTAGCTACAACGA CTTAAAAA</td> <td>3232</td>			904	AACCACTA GGCTAGCTACAACGA CTTAAAAA	3232
4026         AGGUAGUG         G UUAAUUAC         906         GTAATTAA GGCTAGCTACAACGA CACTACCT         3234           4030         AGUGGUUA A UUACCUUU         907         AAAGGTAA GGCTAGCTACAACGA TAACCACT         3235           4033         GGUUAAUU A CCUUUAUG         908         CATAAAGG GGCTAGCTACAACGA AATTAACC         3236           4039         UUACCUUU A UGUACACU         909         AGTTCAC GGCTAGCTACAACGA AAAGGTAA         3237           4041         ACCUUUAU G UGAACUUU         910         AAAGTTCA GGCTAGCTACAACGA ATAAAGGT         3238           4045         UUAUGUGA A CUUUGAAU         911         ATTCAAAG GGCTAGCTACAACGA TCACATAA         3239           4052         AACUUGA A UGGUUUAA         912         TTAAACCA GGCTAGCTACAACGA TCAAAGTT         3240           4055         UUUGAAUG G UUUAACAA         913         TTGTTAAA GGCTAGCTACAACGA CATTCAAA         3241           4060         AUGGUUUA A CAAAAGAU         914         ATCTTTTG GGCTAGCTACAACGA TAAACCAT         3242           4071         AAAGAUU G UUUUUUUU         915         AAAACAAA GGCTAGCTACAACGA AAAACCAT         3244           4077         UUGUUUU G UAGAGAUU         917         AATCTCTA GGCTACAACGA AAAAACAA         3245           4083         UUGUAGAA A UUUUAAGA         918         CTTAAAA GGCTAGCTACAACGA TCTCCCC			905	ATTAACCA GGCTAGCTACAACGA TACCTTAA	3233
4033         GGUUAAUU A CCUUUAUG         908         CATAAAGG GGCTAGCTACAACGA AATTAACC         3236           4039         UUACCUUU A UGUGAACU         909         AGTTCACA GGCTAGCTACAACGA AAAGGTAA         3237           4041         ACCUUUAU G UGAACUUU         910         AAAGTTCA GGCTAGCTACAACGA ATAAAGGT         3238           4045         UUAUGGA A CUUUGAAU         911         ATTCAAAG GGCTAGCTACAACGA TCACATAA         3239           4052         AACUUUGA A UGGUUUAA         912         TTAAACCA GGCTAGCTACAACGA TCACATAA         3239           4055         UUUGAAUG G UUUAACAA         913         TTGTTAAA GGCTAGCTACAACGA CATTCAAA         3241           4060         AUGGUUUA A CAAAAGAU         914         ATCTTTTG GGCTAGCTACAACGA CATTCAAA         3242           4067         AACAAAAG A UUUUUUUU         915         AAAACAAA GGCTAGCTACAACGA CTTTTGTT         3243           4071         AACGUUUU G UAGAGAUU         917         AATCTCTA GGCTAGCTACAACGA AAAACCAA         3245           4083         UUGUAGAG A UUUUAGAA         918         CTTTAAAA GGCTAGCTACAACGA CTCTACAA         3246           4099         GGGGGAGA A UUCUAGAA         919         TTCTAGAA GGCTAGCTACAACGA TCTCCCCC         3247           4108         UUCUAGAA A UAAAUGUU         920         AACATTTA GGCTAGCTACAACGA TCTCAGAA         3		AGGUAGUG G UUAAUUAC	906	GTAATTAA GGCTAGCTACAACGA CACTACCT	3234
4039         UUACCUUU A UGUGAACU         909         AGTTCACA GGCTAGCTACAACGA AAAGGTAA         3237           4041         ACCUUUAU G UGAACUUU         910         AAAGTTCA GGCTAGCTACAACGA ATAAAGGT         3238           4045         UUAUGUGA A CUUUGAAU         911         ATTCAAAG GGCTAGCTACAACGA TCACATAA         3239           4052         AACUUUGA A UGGUUUAA         912         TTAAACCA GGCTAGCTACAACGA TCAAAGTT         3240           4055         UUUGAAUG G UUUAACAA         913         TTGTTAAA GGCTAGCTACAACGA CATTCAAA         3241           4060         AUGGUUUA A CAAAAGAU         914         ATCTTTTG GGCTAGCTACAACGA TAAACCAT         3242           4067         AACAAAAG A UUUGUUU         915         AAAACAAA GGCTAGCTACAACGA CTTTGTT         3243           4071         AAGAGAUU G UUUUUGUA         916         TACAAAAA GGCTAGCTACAACGA AAAACCAT         3244           4077         UUGUUUU G UAGAGAUU         917         AATCTCTA GGCTACAACGA AAAAACAA         3245           4083         UUGUAGAA         918         CTTTAAAA GGCTAGCTACAACGA TCTCCCCC         3247           4108         UUCUAGAA         919         TTCTAGAA GGCTAGCAACGA TCTCCCCC         3247           4112         AGAAUAA A UGUUACCU         921         AGGTAGCTACAACGA TTCTACACGA TTCTAGAA         3249	4030	AGUGGUUA A UUACCUUU	907	AAAGGTAA GGCTAGCTACAACGA TAACCACT	3235
4041         ACCUUUAU G UGAACUUU         910         AAAGTTCA GGCTAGCTACAACGA ATAAAGGT         3238           4045         UUAUGUGA A CUUUGAAU         911         ATTCAAAG GGCTAGCTACAACGA TCACATAA         3239           4052         AACUUUGA A UGGUUUAA         912         TTAAACCA GGCTAGCTACAACGA TCAAAGTT         3240           4055         UUUGAAUG G UUUAACAA         913         TTGTTAAA GGCTAGCTACAACGA CATTCAAA         3241           4060         AUGGUUUA A CAAAAGAU         914         ATCTTTTG GGCTAGCTACAACGA TAAACCAT         3242           4067         AACAAAAG A UUUGUUU         915         AAAACAAA GGCTAGCTACAACGA CTTTGTT         3243           4071         AAAGAUU G UUUUUGUA         916         TACAAAAA GGCTAGCTACAACGA AAAAACAA         3245           4083         UUGUAGAG A UUUUAAAG         918         CTTTAAAA GGCTAGCTACAACGA CTCTACAA         3246           4099         GGGGGAGA A UUCUAGAA         919         TTCTAGAA GGCTAGCTACAACGA TCTCCCCC         3247           4108         UUCUAGAA A UAAAUGUU         920         AACATTTA GGCTAGCTACAACGA TTCTAGAA         3248           4112         AGAAAUAA A UGUUACCU         921         AGGTAACA GGCTAGCTACAACGA ATTATTT         3250           4114         AAAUAAUU A CUUACUAA         922         TTAGGTAA GGCTAGCTACAACGA ATTATTT         3251<	4033	GGUUAAUU A CCUUUAUG	908	CATAAAGG GGCTAGCTACAACGA AATTAACC	3236
4045         UUAUGUGA A CUUUGAAU         911         ATTCAAAG GGCTAGCTACAACGA TCACATAA         3239           4052         AACUUUGA A UGGUUUAA         912         TTAAACCA GGCTAGCTACAACGA TCAAAGTT         3240           4055         UUUGAAUG G UUUAACAA         913         TTGTTAAA GGCTAGCTACAACGA CATTCAAA         3241           4060         AUGGUUUA A CAAAAGAU         914         ATCTTTTG GGCTAGCTACAACGA TAAACCAT         3242           4067         AACAAAAG A UUUGUUUU         915         AAAACAAA GGCTAGCTACAACGA CTTTTGTT         3243           4071         AAAGAUU G UUUUUGUA         916         TACAAAAA GGCTAGCTACAACGA AAAACCAA         3245           4083         UUGUAGAG A UUUUAAAG         918         CTTTAAAA GGCTAGCTACAACGA AAAAACAA         3246           4099         GGGGGAGA A UUCUAGAA         919         TTCTAGAA GGCTAGCTACAACGA TCTCCCCC         3247           4108         UUCUAGAA A UAAAUGUU         920         AACATTTA GGCTAGCTACAACGA TCTCTAGAA         3248           4112         AGAAAUAA A UGUUACCU         921         AGGTAACA GGCTAGCTACAACGA TTTTTTT         3249           4114         AAAUAAAU G UUACCUAA         922         TTAGGTAA GGCTAGCTACAACGA ATTATTT         3250           4117         UAAAUGUU A CUUAUACA         924         TGTAATAA GGCTAGCTACAACGA TAGGTAAC         32	4039	UUACCUUU A UGUGAACU	909	AGTTCACA GGCTAGCTACAACGA AAAGGTAA	3237
4052 AACUUUGA A UGGUUUAA 912 TTAAACCA GGCTAGCTACAACGA TCAAAGTT 3240 4055 UUUGAAUG G UUUAACAA 913 TTGTTAAA GGCTAGCTACAACGA CATTCAAA 3241 4060 AUGGUUUA A CAAAAGAU 914 ATCTTTTG GGCTAGCTACAACGA TAAACCAT 3242 4067 AACAAAAG A UUUGUUUU 915 AAAACAAA GGCTAGCTACAACGA CTTTTGTT 3243 4071 AAAGAUUU G UUUUUGUA 916 TACAAAAA GGCTAGCTACAACGA AAATCTTT 3244 4077 UUGUUUUU G UAGAGAUU 917 AATCTCTA GGCTAGCTACAACGA AAAACAA 3245 4083 UUGUAGAG A UUUUAAAG 918 CTTTAAAA GGCTAGCTACAACGA CTCTACAA 3246 4099 GGGGGAGA A UUCUAGAA 919 TTCTAGAA GGCTAGCTACAACGA TCTCCCCC 3247 4108 UUCUAGAA A UAAAUGUU 920 AACATTTA GGCTAGCTACAACGA TCTCCCCC 3247 4108 UUCUAGAA A UGUUACCU 921 AGGTAACA GGCTAGCTACAACGA TTCTAGAA 3248 4112 AGAAAUAA A UGUUACCU 921 AGGTAACA GGCTAGCTACAACGA TTCTAGAA 3249 4114 AAAUAAAU G UUACCUAA 922 TTAGGTAA GGCTAGCTACAACGA ATTTATTT 3250 4117 UAAAUGUU A CCUAAUUA 923 TAATTAGG GGCTAGCTACAACGA ACATTTA 3251 4122 GUUACCUA A UUAUACA 924 TGTAATAA GGCTAGCTACAACGA TAGGTAAC 4128 UAAUUAUU A UACAGCC 925 GGCTGTAA GGCTAGCTACAACGA AATTAGGT 3253 4128 UAAUUAUU A CAGCCUUA 926 TAAGGCTG GGCTAGCTACAACGA AATTAGGT 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAAATAA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TTTATTTA 3250 4140 CCUUAAAG A CAAAAAUC 928 GATTTTTG GGCTAGCTACAACGA TTTAATTA 3254 4140 CCUUAAAG A CAAAAAUC 928 GATTTTTG GGCTAGCTACAACGA TTTAATTA 3254 4140 CCUUAAAG A CAAAAAUC 928 GATTTTTG GGCTAGCTACAACGA TTTAATTA 3254 4140 CCUUAAAG A CAAAAAUC 928 GATTTTTG GGCTAGCTACAACGA TTTAATTA 3254 4140 CCUUAAAG A CAAAAAUC 928 GATTTTTG GGCTAGCTACAACGA TTTAATTA 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTAATTA 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTAATTA 3256	4041	ACCUUUAU G UGAACUUU	910	AAAGTTCA GGCTAGCTACAACGA ATAAAGGT	3238
4055 UUUGAAUG G UUUAACAA 913 TTGTTAAA GGCTAGCTACAACGA CATTCAAA 3241 4060 AUGGUUUA A CAAAAGAU 914 ATCTTTTG GGCTAGCTACAACGA TAAACCAT 3242 4067 AACAAAAG A UUUGUUUU 915 AAAACAAA GGCTAGCTACAACGA CTTTTGTT 3243 4071 AAAGAUUU G UUUUUGUA 916 TACAAAAA GGCTAGCTACAACGA AAATCTTT 3244 4077 UUGUUUUU G UAGAGAUU 917 AATCTCTA GGCTAGCTACAACGA AAAACCAA 3245 4083 UUGUAGAG A UUUUAAAG 918 CTTTAAAA GGCTAGCTACAACGA AAAAACAA 3246 4099 GGGGGAGA A UUCUAGAA 919 TTCTAGAA GGCTAGCTACAACGA TCTCCCCC 3247 4108 UUCUAGAA A UAAAUGUU 920 AACATTTA GGCTAGCTACAACGA TCTCCCCC 3247 4108 UUCUAGAA A UAAAUGUU 921 AGGTAACA GGCTAGCTACAACGA TTCTAGAA 3246 4112 AGAAAUAA A UGUUACCU 921 AGGTAACA GGCTAGCTACAACGA TTTTTTCT 3249 4114 AAAUAAAU G UUACCUAA 922 TTAGGTAA GGCTAGCTACAACGA ATTTATTT 3250 4117 UAAAUGUU A CCUAAUUA 923 TAATTAGG GGCTAGCTACAACGA AACATTTA 3251 4122 GUUACCUA A UUAUUACA 924 TGTAATAA GGCTAGCTACAACGA TAGGTAAC 4125 ACCUAAUU A UUACAGCC 925 GGCTGTAA GGCTAGCTACAACGA AATAATTA 3251 4128 UAAUUAUU A CAGCCUUA 926 TAAGGCTG GGCTAGCTACAACGA AATAATTA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA AATAATTA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA CTTTAAGG 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTTATGT 3250	4045	UUAUGUGA A CUUUGAAU	911	ATTCAAAG GGCTAGCTACAACGA TCACATAA	3239
4060 AUGGUUUA A CAAAAGAU 914 ATCTTTTG GGCTAGCTACAACGA TAAACCAT 3242 4067 AACAAAAG A UUUGUUUU 915 AAAACAAA GGCTAGCTACAACGA CTTTTGTT 3243 4071 AAAGAUUU G UUUUUGUA 916 TACAAAAA GGCTAGCTACAACGA AAAACCAA 3245 4083 UUGUAGAG A UUUUAAAG 918 CTTTAAAA GGCTAGCTACAACGA CTCTACAA 3246 4099 GGGGGAGA A UUCUAGAA 919 TTCTAGAA GGCTAGCTACAACGA TCTCCCCC 3247 4108 UUCUAGAA A UAAAUGUU 920 AACATTTA GGCTAGCTACAACGA TTCTAGAA 3248 4112 AGAAAUAA A UGUUACCU 921 AGGTAACA GGCTAGCTACAACGA TTCTAGAA 3249 4114 AAAUAAAU G UUACCUAA 922 TTAGGTAA GGCTAGCTACAACGA ATTTATTT 3250 4117 UAAAUGUU A CCUAAUUA 923 TAATTAGG GGCTAGCTACAACGA ATTTATTT 3251 4122 GUUACCUA A UUAUUACA 924 TGTAATAA GGCTAGCTACAACGA TAGGTAAC 3252 4125 ACCUAAUU A UUACAGCC 925 GGCTGTAA GGCTAGCTACAACGA AATAATTA 3251 4128 UAAUUAUU A CAGCCUUA 926 TAAGGCTG GGCTAGCTACAACGA AATAATTA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAATAA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAATAA 3254 4140 CCUUAAAG A CAAAAAUC 928 GATTTTG GGCTAGCTACAACGA CTTTAAGG 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTTGTCT 3257	4052	AACUUUGA A UGGUUUAA	912	TTAAACCA GGCTAGCTACAACGA TCAAAGTT	3240
4067 AACAAAAG A UUUGUUUU 915 AAAACAAA GGCTAGCTACAACGA CTTTTGTT 3243 4071 AAAGAUUU G UUUUUGUA 916 TACAAAAA GGCTAGCTACAACGA AAATCTTT 3244 4077 UUGUUUUU G UAGAGAUU 917 AATCTCTA GGCTAGCTACAACGA AAAACAA 3245 4083 UUGUAGAG A UUUUAAAG 918 CTTTAAAA GGCTAGCTACAACGA CTCTACAA 3246 4099 GGGGGAGA A UUCUAGAA 919 TTCTAGAA GGCTAGCTACAACGA TCTCCCCC 3247 4108 UUCUAGAA A UAAAUGUU 920 AACATTTA GGCTAGCTACAACGA TCTCTAGAA 3248 4112 AGAAAUAA A UGUUACCU 921 AGGTAACA GGCTAGCTACAACGA TTCTAGAA 3249 4114 AAAUAAAU G UUACCUAA 922 TTAGGTAA GGCTAGCTACAACGA ATTTATTT 3250 4117 UAAAUGUU A CCUAAUUA 923 TAATTAGG GGCTAGCTACAACGA AACATTTA 3251 4122 GUUACCUA A UUAUUACA 924 TGTAATAA GGCTAGCTACAACGA TAGGTAAC 3252 4125 ACCUAAUU A UUACAGCC 925 GGCTGTAA GGCTAGCTACAACGA AATAATTA 3254 4128 UAAUUAUU A CAGCCUUA 926 TAAGGCTG GGCTAGCTACAACGA AATAATTA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAATAA 3254 4140 CCUUAAAG A CAAAAAUC 928 GATTTTG GGCTAGCTACAACGA TTTAGGT 3253 4140 CCUUAAAG A CAAAAAUC 928 GATTTTG GGCTAGCTACAACGA CTTTAAGG 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTTGTCT 3257	4055	UUUGAAUG G UUUAACAA	913	TTGTTAAA GGCTAGCTACAACGA CATTCAAA	3241
4067 AACAAAAG A UUUGUUUU 915 AAAACAAA GGCTAGCTACAACGA CTTTTGTT 3243 4071 AAAGAUUU G UUUUUGUA 916 TACAAAAA GGCTAGCTACAACGA AAATCTTT 3244 4077 UUGUUUUU G UAGAGAUU 917 AATCTCTA GGCTAGCTACAACGA AAAAACAA 3245 4083 UUGUAGAG A UUUUAAAG 918 CTTTAAAA GGCTAGCTACAACGA CTCTACAA 3246 4099 GGGGGAGA A UUCUAGAA 919 TTCTAGAA GGCTAGCTACAACGA TCTCCCCC 3247 4108 UUCUAGAA A UAAAUGUU 920 AACATTTA GGCTAGCTACAACGA TTCTAGAA 3248 4112 AGAAAUAA A UGUUACCU 921 AGGTAACA GGCTAGCTACAACGA TTCTTCT 3249 4114 AAAUAAAU G UUACCUAA 922 TTAGGTAA GGCTAGCTACAACGA ATTTATTT 3250 4117 UAAAUGUU A CCUAAUUA 923 TAATTAGG GGCTAGCTACAACGA AACATTTA 3251 4122 GUUACCUA A UUAUUACA 924 TGTAATAA GGCTAGCTACAACGA TAGGTAAC 3252 4125 ACCUAAUU A UUACAGCC 925 GGCTGTAA GGCTAGCTACAACGA AATTAGGT 3253 4128 UAAUUAUU A CAGCCUUA 926 TAAGGCTG GGCTAGCTACAACGA AATAATTA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAATAA 3254 4140 CCUUAAAG A CAAAAAUC 928 GATTTTG GGCTAGCTACAACGA CTTTAAGG 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTTGTCT 3257	4060	AUGGUUUA A CAAAAGAU	914	ATCTTTG GGCTAGCTACAACGA TAAACCAT	3242
4077 UUGUUUUU G UAGAGAUU 917 AATCTCTA GGCTAGCTACAACGA AAAAACAA 3245 4083 UUGUAGAG A UUUUAAAG 918 CTTTAAAA GGCTAGCTACAACGA CTCTACAA 3246 4099 GGGGGAGA A UUCUAGAA 919 TTCTAGAA GGCTAGCTACAACGA TCTCCCCC 3247 4108 UUCUAGAA A UAAAUGUU 920 AACATTTA GGCTAGCTACAACGA TTCTAGAA 3248 4112 AGAAAUAA A UGUUACCU 921 AGGTAACA GGCTAGCTACAACGA TTATTTCT 3249 4114 AAAUAAAU G UUACCUAA 922 TTAGGTAA GGCTAGCTACAACGA ATTTATTT 3250 4117 UAAAUGUU A CCUAAUUA 923 TAATTAGG GGCTAGCTACAACGA AACATTTA 3251 4122 GUUACCUA A UUAUUACA 924 TGTAATAA GGCTAGCTACAACGA TAGGTAAC 3252 4125 ACCUAAUU A UUACAGCC 925 GGCTGTAA GGCTAGCTACAACGA AATTAGGT 3253 4128 UAAUUAUU A CAGCCUUA 926 TAAGGCTG GGCTAGCTACAACGA AATAATTA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAATAA 3254 4140 CCUUAAAG A CAAAAAUC 928 GATTTTG GGCTAGCTACAACGA CTTTAAGG 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTTGTCT 3257		<u> </u>	915	AAAACAAA GGCTAGCTACAACGA CTTTTGTT	3243
4083 UUGUAGAG A UUUUAAAG 918 CTTTAAAA GGCTAGCTACAACGA CTCTACAA 3246 4099 GGGGGAGA A UUCUAGAA 919 TTCTAGAA GGCTAGCTACAACGA TCTCCCCC 3247 4108 UUCUAGAA A UAAAUGUU 920 AACATTTA GGCTAGCTACAACGA TTCTAGAA 3248 4112 AGAAAUAA A UGUUACCU 921 AGGTAACA GGCTAGCTACAACGA TTATTTCT 3249 4114 AAAUAAAU G UUACCUAA 922 TTAGGTAA GGCTAGCTACAACGA ATTTATTT 3250 4117 UAAAUGUU A CCUAAUUA 923 TAATTAGG GGCTAGCTACAACGA AACATTTA 3251 4122 GUUACCUA A UUAUUACA 924 TGTAATAA GGCTAGCTACAACGA TAGGTAAC 3252 4125 ACCUAAUU A UUACAGCC 925 GGCTGTAA GGCTAGCTACAACGA AATTAGGT 3253 4128 UAAUUAUU A CAGCCUUA 926 TAAGGCTG GGCTAGCTACAACGA AATAATTA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAATAA 3254 4140 CCUUAAAG A CAAAAAUC 928 GATTTTG GGCTAGCTACAACGA TTTTAGGG 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTTGTCT 3257	4071	AAAGAUUU G UUUUUGUA	916	TACAAAAA GGCTAGCTACAACGA AAATCTTT	3244
4083UUGUAGAG A UUUUAAAG918CTTTAAAA GGCTAGCTACAACGA CTCTACAA32464099GGGGGAGA A UUCUAGAA919TTCTAGAA GGCTAGCTACAACGA TCTCCCCC32474108UUCUAGAA A UAAAUGUU920AACATTTA GGCTAGCTACAACGA TTCTAGAA32484112AGAAAUAA A UGUUACCU921AGGTAACA GGCTAGCTACAACGA TTATTTCT32494114AAAUAAAU G UUACCUAA922TTAGGTAA GGCTAGCTACAACGA ATTTATTT32504117UAAAUGUU A CCUAAUUA923TAATTAGG GGCTAGCTACAACGA AACATTTA32514122GUUACCUA A UUAUUACA924TGTAATAA GGCTAGCTACAACGA TAGGTAAC32524125ACCUAAUU A UUACAGCC925GGCTGTAA GGCTAGCTACAACGA AATTAGGT32534128UAAUUAUU A CAGCCUUA926TAAGGCTG GGCTAGCTACAACGA AATAATTA32544131UUAUUACA G CCUUAAAG927CTTTAAGG GGCTAGCTACAACGA TGTAATAA32544140CCUUAAAG A CAAAAAUC928GATTTTG GGCTAGCTACAACGA CTTTAAGG32564146AGACAAAA A UCCUUGUU929AACAAGGA GGCTAGCTACAACGA TTTTGTCT3257	4077	UUGUUUUU G UAGAGAUU	917	AATCTCTA GGCTAGCTACAACGA AAAAACAA	3245
4099 GGGGGAGA A UUCUAGAA 919 TTCTAGAA GGCTAGCTACAACGA TCTCCCCC 3247 4108 UUCUAGAA A UAAAUGUU 920 AACATTTA GGCTAGCTACAACGA TTCTAGAA 3248 4112 AGAAAUAA A UGUUACCU 921 AGGTAACA GGCTAGCTACAACGA TTATTTCT 3249 4114 AAAUAAAU G UUACCUAA 922 TTAGGTAA GGCTAGCTACAACGA ATTTATTT 3250 4117 UAAAUGUU A CCUAAUUA 923 TAATTAGG GGCTAGCTACAACGA AACATTTA 3251 4122 GUUACCUA A UUAUUACA 924 TGTAATAA GGCTAGCTACAACGA AACATTTA 3251 4125 ACCUAAUU A UUACAGCC 925 GGCTGTAA GGCTAGCTACAACGA AATTAGGT 3253 4128 UAAUUAUU A CAGCCUUA 926 TAAGGCTG GGCTAGCTACAACGA AATAATTA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAATAA 3255 4140 CCUUAAAG A CAAAAAUC 928 GATTTTG GGCTAGCTACAACGA CTTTAAGG 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTTGTCT 3257			918	CTTTAAAA GGCTAGCTACAACGA CTCTACAA	3246
4108 UUCUAGAA A UAAAUGUU 920 AACATTTA GGCTAGCTACAACGA TTCTAGAA 3248 4112 AGAAAUAA A UGUUACCU 921 AGGTAACA GGCTAGCTACAACGA TTATTTCT 3249 4114 AAAUAAAU G UUACCUAA 922 TTAGGTAA GGCTAGCTACAACGA ATTTATTT 3250 4117 UAAAUGUU A CCUAAUUA 923 TAATTAGG GGCTAGCTACAACGA AACATTTA 3251 4122 GUUACCUA A UUAUUACA 924 TGTAATAA GGCTAGCTACAACGA TAGGTAAC 3252 4125 ACCUAAUU A UUACAGCC 925 GGCTGTAA GGCTAGCTACAACGA AATTAGGT 3253 4128 UAAUUAUU A CAGCCUUA 926 TAAGGCTG GGCTAGCTACAACGA AATAATTA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAATAA 3255 4140 CCUUAAAG A CAAAAAUC 928 GATTTTG GGCTAGCTACAACGA CTTTAAGG 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTTGTCT 3257			919	TTCTAGAA GGCTAGCTACAACGA TCTCCCCC	3247
4112 AGAAAUAA A UGUUACCU 921 AGGTAACA GGCTAGCTACAACGA TTATTTCT 3249 4114 AAAUAAAU G UUACCUAA 922 TTAGGTAA GGCTAGCTACAACGA ATTATTT 3250 4117 UAAAUGUU A CCUAAUUA 923 TAATTAGG GGCTAGCTACAACGA AACATTTA 3251 4122 GUUACCUA A UUAUUACA 924 TGTAATAA GGCTAGCTACAACGA TAGGTAAC 3252 4125 ACCUAAUU A UUACAGCC 925 GGCTGTAA GGCTAGCTACAACGA AATTAGGT 3253 4128 UAAUUAUU A CAGCCUUA 926 TAAGGCTG GGCTAGCTACAACGA AATAATTA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAATAA 3255 4140 CCUUAAAG A CAAAAAUC 928 GATTTTG GGCTAGCTACAACGA CTTTAAGG 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTTGTCT 3257		· · · · · · · · · · · · · · · · · · ·	920	AACATTTA GGCTAGCTACAACGA TTCTAGAA	3248
4114 AAAUAAAU G UUACCUAA 922 TTAGGTAA GGCTAGCTACAACGA ATTTATTT 3250 4117 UAAAUGUU A CCUAAUUA 923 TAATTAGG GGCTAGCTACAACGA AACATTTA 3251 4122 GUUACCUA A UUAUUACA 924 TGTAATAA GGCTAGCTACAACGA TAGGTAAC 3252 4125 ACCUAAUU A UUACAGCC 925 GGCTGTAA GGCTAGCTACAACGA AATTAGGT 3253 4128 UAAUUAUU A CAGCCUUA 926 TAAGGCTG GGCTAGCTACAACGA AATAATTA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAATAA 3255 4140 CCUUAAAG A CAAAAAUC 928 GATTTTG GGCTAGCTACAACGA CTTTAAGG 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTTGTCT 3257	<del></del>	<del></del>	921	<del>                                     </del>	3249
4117 UAAAUGUU A CCUAAUUA 923 TAATTAGG GGCTAGCTACAACGA AACATTTA 3251 4122 GUUACCUA A UUAUUACA 924 TGTAATAA GGCTAGCTACAACGA TAGGTAAC 3252 4125 ACCUAAUU A UUACAGCC 925 GGCTGTAA GGCTAGCTACAACGA AATTAGGT 3253 4128 UAAUUAUU A CAGCCUUA 926 TAAGGCTG GGCTAGCTACAACGA AATAATTA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAATAA 3255 4140 CCUUAAAG A CAAAAAUC 928 GATTTTG GGCTAGCTACAACGA CTTTAAGG 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTTGTCT 3257	<del></del>		1	<del>                                     </del>	3250
4122 GUUACCUA A UUAUUACA 924 TGTAATAA GGCTAGCTACAACGA TAGGTAAC 3252 4125 ACCUAAUU A UUACAGCC 925 GGCTGTAA GGCTAGCTACAACGA AATTAGGT 3253 4128 UAAUUAUU A CAGCCUUA 926 TAAGGCTG GGCTAGCTACAACGA AATAATTA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAATAA 3255 4140 CCUUAAAG A CAAAAAUC 928 GATTTTG GGCTAGCTACAACGA CTTTAAGG 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTTGTCT 3257		<del> </del>	<del></del>		3251
4125 ACCUAAUU A UUACAGCC 925 GGCTGTAA GGCTAGCTACAACGA AATTAGGT 3254 4128 UAAUUAUU A CAGCCUUA 926 TAAGGCTG GGCTAGCTACAACGA AATAATTA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAATAA 3255 4140 CCUUAAAG A CAAAAAUC 928 GATTTTTG GGCTAGCTACAACGA CTTTAAGG 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTTGTCT 3257		<del> </del>	+		3252
4128 UAAUUAUU A CAGCCUUA 926 TAAGGCTG GGCTAGCTACAACGA AATAATTA 3254 4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAATAA 3255 4140 CCUUAAAG A CAAAAAUC 928 GATTTTTG GGCTAGCTACAACGA CTTTAAGG 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTTGTCT 3257		<del></del>	<del>                                     </del>	<del></del>	3253
4131 UUAUUACA G CCUUAAAG 927 CTTTAAGG GGCTAGCTACAACGA TGTAATAA 3255 4140 CCUUAAAG A CAAAAAUC 928 GATTTTG GGCTAGCTACAACGA CTTTAAGG 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTTGTCT 3257		<del></del>	<del>                                     </del>	<del></del>	3254
4140 CCUUAAAG A CAAAAAUC 928 GATTTTG GGCTACCTACAACGA CTTTAAGG 3256 4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTACCAACGA TTTTGTCT 3257		· <del> </del>		<del></del>	3255
4146 AGACAAAA A UCCUUGUU 929 AACAAGGA GGCTAGCTACAACGA TTTTGTCT 3257		<del></del>	+		3256
7170 Addition 1 2000000		<del> </del>	+	<del></del>	3257
		<del></del>	<del></del>		3258
		<del></del>	+		3259
1150 9550511 955051		<del> </del>	<del></del>	<del></del>	3260

4179	AAGACUAA A UUACAUAG	933	CTATGTAA GGCTAGCTACAACGA TTAGTCTT	3261
4182	ACUAAAUU A CAUAGACU	934	AGTCTATG GGCTAGCTACAACGA AATTTAGT	3262
4184	UAAAUUAC A UAGACUUA	935	TAAGTCTA GGCTAGCTACAACGA GTAATTTA	3263
4188	UUACAUAG A CUUAGGCA	936	TGCCTAAG GGCTAGCTACAACGA CTATGTAA	3264
4194	AGACUUAG G CAUUAACA	937	TGTTAATG GGCTAGCTACAACGA CTAAGTCT	3265
4196	ACUUAGGC A UUAACAUG	938	CATGTTAA GGCTAGCTACAACGA GCCTAAGT	3266
4200	AGGCAUUA A CAUGUUUG	939	CAAACATG GGCTAGCTACAACGA TAATGCCT	3267
4202	GCAUUAAC A UGUUUGUG	940	CACAAACA GGCTAGCTACAACGA GTTAATGC	3268
4204	AUUAACAU G UUUGUGGA	941	TCCACAAA GGCTAGCTACAACGA ATGTTAAT	3269
4208	ACAUGUUU G UGGAAGAA	942	TTCTTCCA GGCTAGCTACAACGA AAACATGT	3270
4216	GUGGAAGA A UAUAGCAG	943	CTGCTATA GGCTAGCTACAACGA TCTTCCAC	3271
4218	GGAAGAAU A UAGCAGAC	944	GTCTGCTA GGCTAGCTACAACGA ATTCTTCC	3272
4221	AGAAUAUA G CAGACGUA	945	TACGTCTG GGCTAGCTACAACGA TATATTCT	3273
4225	UAUAGCAG A CGUAUAUU	946	AATATACG GGCTAGCTACAACGA CTGCTATA	3274
4227	UAGCAGAC G UAUAUUGU	947	ACAATATA GGCTAGCTACAACGA GTCTGCTA	3275
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4994	UCUUACUA G UACUAUUU	1117	AAATAGTA GGCTAGCTACAACGA TAGTAAGA	3445
4996	UUACUAGU A CUAUUUCU	1118	AGAAATAG GGCTAGCTACAACGA ACTAGTAA	3446
4999	CUAGUACU A UUUCUUAA	1119	TTAAGAAA GGCTAGCTACAACGA AGTACTAG	3447
5007	AUUUCUUA A UGUAACAU	1120	ATGTTACA GGCTAGCTACAACGA TAAGAAAT	3448
5009	UUCUUAAU G UAACAUGU	1121	ACATGTTA GGCTAGCTACAACGA ATTAAGAA	3449
5012	UUAAUGUA A CAUGUUUA	1122	TAAACATG GGCTAGCTACAACGA TACATTAA	3450
5014	AAUGUAAC A UGUUUACC	1123	GGTAAACA GGCTAGCTACAACGA GTTACATT	3451
5016	UGUAACAU G UUUACCUG	1124	CAGGTAAA GGCTAGCTACAACGA ATGTTACA	3452
5020	ACAUGUUU A CCUGGCCU	1125	AGGCCAGG GGCTAGCTACAACGA AAACATGT	3453
5025	UUUACCUG G CCUGUCUU	1126	AAGACAGG GGCTAGCTACAACGA CAGGTAAA	3454
5029	CCUGGCCU G UCUUUUAA	1127	TTAAAAGA GGCTAGCTACAACGA AGGCCAGG	3455
5037	GUCUUUUA A CUAUUUUU	1128	AAAAATAG GGCTAGCTACAACGA TAAAAGAC	3456
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5046	CUAUUUUU G UAUAGUGU	1130	ACACTATA GGCTAGCTACAACGA AAAAATAG	3458
5048		1131	TTACACTA GGCTAGCTACAACGA ACAAAAAT	3459
5051	UUUGUAUA G UGUAAACU	1132	AGTTTACA GGCTAGCTACAACGA TATACAAA	3460
5053	UGUAUAGU G UAAACUGA	1133	TCAGTTTA GGCTAGCTACAACGA ACTATACA	3461
5057	UAGUGUAA A CUGAAACA	1134	TGTTTCAG GGCTAGCTACAACGA TTACACTA	3462
5063	AAACUGAA A CAUGCACA	1135	TGTGCATG GGCTAGCTACAACGA TTCAGTTT	3463
5065	ACUGAAAC A UGCACAUU	1136	AATGTGCA GGCTAGCTACAACGA GTTTCAGT	3464
5067	UGAAACAU G CACAUUUU	1137	AAAATGTG GGCTAGCTACAACGA ATGTTTCA	3465
5069	AAACAUGC A CAUUUUGU	1138	ACAAAATG GGCTAGCTACAACGA GCATGTTT	3466
5071	ACAUGCAC A UUUUGUAC	1139	GTACAAAA GGCTAGCTACAACGA GTGCATGT	3467
5076	CACAUUUU G UACAUUGU	1140	ACAATGTA GGCTAGCTACAACGA AAAATGTG	3468



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5078	CAUUUUGU A CAUUGUGC	1141	GCACAATG GGCTAGCTACAACGA ACAAAATG	3469
5080	UUUUGUAC A UUGUGCUU	1142	AAGCACAA GGCTAGCTACAACGA GTACAAAA	3470
5083	UGUACAUU G UGCUUUCU	1143	AGAAAGCA GGCTAGCTACAACGA AATGTACA	3471
5085	UACAUUGU G CUUUCUUU	1144	AAAGAAAG GGCTAGCTACAACGA ACAATGTA	3472
5095	UUUCUUUU G UGGGUCAU	1145	ATGACCCA GGCTAGCTACAACGA AAAAGAAA	3473
5099	UUUUGUGG G UCAUAUGC	1146	GCATATGA GGCTAGCTACAACGA CCACAAAA	3474
5102	UGUGGGUC A UAUGCAGU	1147	ACTGCATA GGCTAGCTACAACGA GACCCACA	3475
5104	UGGGUCAU A UGCAGUGU	1148	ACACTGCA GGCTAGCTACAACGA ATGACCCA	3476
5106	GGUCAUAU G CAGUGUGA	1149	TCACACTG GGCTAGCTACAACGA ATATGACC	3477
5109	CAUAUGCA G UGUGAUCC	1150	GGATCACA GGCTAGCTACAACGA TGCATATG	3478
5111	UAUGCAGU G UGAUCCAG	1151	CTGGATCA GGCTAGCTACAACGA ACTGCATA	3479
5114	GCAGUGUG A UCCAGUUG	1152	CAACTGGA GGCTAGCTACAACGA CACACTGC	3480
5119	GUGAUCCA G UUGUUUUC	1153	GAAAACAA GGCTAGCTACAACGA TGGATCAC	3481
.5122	AUCCAGUU G UUUUCCAU	1154	ATGGAAAA GGCTAGCTACAACGA AACTGGAT	3482
5129	UGUUUUCC A UCAUUUGG	1155	CCAAATGA GGCTAGCTACAACGA GGAAAACA	3483
5132	UUUCCAUC A UUUGGUUG	1156	CAACCAAA GGCTAGCTACAACGA GATGGAAA	3484
5137	AUCAUUUG G UUGCGCUG	1157	CAGCGCAA GGCTAGCTACAACGA CAAATGAT	3485
5140	AUUUGGUU G CGCUGACC	1158	GGTCAGCG GGCTAGCTACAACGA AACCAAAT	3486
5142	UUGGUUGC G CUGACCUA	1159	TAGGTCAG GGCTAGCTACAACGA GCAACCAA	3487
5146	UUGCGCUG A CCUAGGAA	1160	TTCCTAGG GGCTAGCTACAACGA CAGCGCAA	3488
5154	ACCUAGGA A UGUUGGUC	1161	GACCAACA GGCTAGCTACAACGA TCCTAGGT	3489
5156	CUAGGAAU G UUGGUCAU	1162	ATGACCAA GGCTAGCTACAACGA ATTCCTAG	3490
5160	GAAUGUUG G UCAUAUCA	1163	TGATATGA GGCTAGCTACAACGA CAACATTC	3491
5163	UGUUGGUC A UAUCAAAC	1164	GTTTGATA GGCTAGCTACAACGA GACCAACA	3492
5165	UUGGUCAU A UCAAACAU	1165	ATGTTTGA GGCTAGCTACAACGA ATGACCAA	3493
5170	CAUAUCAA A CAUUAAAA	1166	TTTTAATG GGCTAGCTACAACGA TTGATATG	3494
5172	UAUCAAAC A UUAAAAAU	1167	ATTTTAA GGCTAGCTACAACGA GTTTGATA	3495
5179	CAUUAAAA A UGACCACU	1168	AGTGGTCA GGCTAGCTACAACGA TTTTAATG	3496
5182	UAAAAAUG A CCACUCUU	1169	AAGAGTGG GGCTAGCTACAACGA CATTTTTA	3497
5185	AAAUGACC A CUCUUUUA	1170	TAAAAGAG GGCTAGCTACAACGA GGTCATTT	3498
5194	CUCUUUUA A UGAAAUUA	1171	TAATTTCA GGCTAGCTACAACGA TAAAAGAG	3499
5199	UUAAUGAA A UUAACUUU	1172	AAAGTTAA GGCTAGCTACAACGA TTCATTAA	3500
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5211	ACUUUUAA A UGUUUAUA	1174	TATAAACA GGCTAGCTACAACGA TTAAAAGT	3502
5213	UUUUAAAU G UUUAUAGG	1175	CCTATAAA GGCTAGCTACAACGA ATTTAAAA	3503
5217	AAAUGUUU A UAGGAGUA	1176	TACTCCTA GGCTAGCTACAACGA AAACATTT	3504
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5227	AGGAGUAU G UGCUGUGA	1179	TCACAGCA GGCTAGCTACAACGA ATACTCCT	3507
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5232	UAUGUGCU G UGAAGUGA	1181	TCACTTCA GGCTAGCTACAACGA AGCACATA	3509
5237	GCUGUGAA G UGAUCUAA	1182	TTAGATCA GGCTAGCTACAACGA TTCACAGC	3510
5240	GUGAAGUG A UCUAAAAU	1183	ATTTTAGA GGCTAGCTACAACGA CACTTCAC	3511
5247	GAUCUAAA A UUUGUAAU	1184	ATTACAAA GGCTAGCTACAACGA TTTAGATC	3512
5251	UAAAAUUU G UAAUAUUU	1185	AAATATTA GGCTAGCTACAACGA AAATTTTA	3513
5254	AAUUUGUA A UAUUUUUG	1186	CAAAAATA GGCTAGCTACAACGA TACAAATT	3514
5256	UUUGUAAU A UUUUUGUC	1187	GACAAAAA GGCTAGCTACAACGA ATTACAAA	3515
5262	AUAUUUUU G UCAUGAAC	1188	GTTCATGA GGCTAGCTACAACGA AAAAATAT	3516
5265	UUUUUGUC A UGAACUGU	1189	ACAGTTCA GGCTAGCTACAACGA GACAAAAA	3517
5269	UGUCAUGA A CUGUACUA	1190	TAGTACAG GGCTAGCTACAACGA TCATGACA	3518
5272	CAUGAACU G UACUACUC	1191	GAGTAGTA GGCTAGCTACAACGA AGTTCATG	3519
5274	UGAACUGU A CUACUCCU	1192	AGGAGTAG GGCTAGCTACAACGA ACAGTTCA	3520
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5277 ACUGUACU A CUCCUAAU 1193 ATTAGGAG GGCTAGCTAC 5284 UACUCCUA A UUAUUGUA 1194 TACAATAA GGCTAGCTAC 5287 UCCUAAUU A UUGUAAUG 1195 CATTACAA GGCTAGCTAC 5290 UAAUUAUU G UAAUGUAA 1196 TTACATTA GGCTAGCTAC 5293 UUAUUGUA A UGUAAUAA 1197 TTATTACA GGCTAGCTAC 5295 AUUGUAAU G UAAUAAAA 1198 TTTTATTA GGCTAGCTAC 5298 GUAAUGUA A UAAAAAUA 1199 TATTTTTA GGCTAGCTAC 5304 UAAUAAAA A UAGUUACA 1200 TGTAACTA GGCTAGCTAC 5307 UAAAAAUA G UUACAGUG 1201 CACTGTAA GGCTAGCTAC	TAACGA TAGGAGTA TAACGA AATTAGGA TAACGA AATAATTA TAACGA TACAATAA TAACGA ATTACAAT TAACGA TACATTAC TAACGA TACATTAC TAACGA TATTATTA TAACGA TATTTTTA	3521 3522 3523 3524 3525 3526 3527 3528
5284 UACUCCUA A UUAUUGUA 1194 TACAATAA GGCTAGCTAC 5287 UCCUAAUU A UUGUAAUG 1195 CATTACAA GGCTAGCTAC 5290 UAAUUAUU G UAAUGUAA 1196 TTACATTA GGCTAGCTAC 5293 UUAUUGUA A UGUAAUAA 1197 TTATTACA GGCTAGCTAC 5295 AUUGUAAU G UAAUAAAA 1198 TTTTATTA GGCTAGCTAC 5298 GUAAUGUA A UAAAAAUA 1199 TATTTTTA GGCTAGCTAC 5304 UAAUAAAA A UAGUUACA 1200 TGTAACTA GGCTAGCTAC	CAACGA AATTAGGA CAACGA AATAATTA CAACGA TACAATAA CAACGA ATTACAAT CAACGA TACATTAC CAACGA TATTATTA CAACGA TATTTTTA	3523 3524 3525 3526 3527 3528
5287 UCCUAAUU A UUGUAAUG 1195 CATTACAA GGCTAGCTAC 5290 UAAUUAUU G UAAUGUAA 1196 TTACATTA GGCTAGCTAC 5293 UUAUUGUA A UGUAAUAA 1197 TTATTACA GGCTAGCTAC 5295 AUUGUAAU G UAAUAAAA 1198 TTTTATTA GGCTAGCTAC 5298 GUAAUGUA A UAAAAAUA 1199 TATTTTTA GGCTAGCTAC 5304 UAAUAAAA A UAGUUACA 1200 TGTAACTA GGCTAGCTAC	CAACGA TACAATAA CAACGA TACAATAA CAACGA ATTACAAT CAACGA TACATTAC CAACGA TATTTTTA CAACGA TATTTTTA	3524 3525 3526 3527 3528
5290 UAAUUAUU G UAAUGUAA 1196 TTACATTA GGCTAGCTAC 5293 UUAUUGUA A UGUAAUAA 1197 TTATTACA GGCTAGCTAC 5295 AUUGUAAU G UAAUAAAA 1198 TTTTATTA GGCTAGCTAC 5298 GUAAUGUA A UAAAAAUA 1199 TATTTTTA GGCTAGCTAC 5304 UAAUAAAA A UAGUUACA 1200 TGTAACTA GGCTAGCTAC	CAACGA TACAATAA CAACGA ATTACAAT CAACGA TACATTAC CAACGA TTTTATTA CAACGA TATTTTTA	3525 3526 3527 3528
5293 UUAUUGUA A UGUAAUAA 1197 TTATTACA GGCTAGCTAC 5295 AUUGUAAU G UAAUAAAA 1198 TTTTATTA GGCTAGCTAC 5298 GUAAUGUA A UAAAAAUA 1199 TATTTTTA GGCTAGCTAC 5304 UAAUAAAA A UAGUUACA 1200 TGTAACTA GGCTAGCTAC	CAACGA ATTACAAT CAACGA TACATTAC CAACGA TTTTATTA CAACGA TATTTTTA	3526 3527 3528
5295 AUUGUAAU G UAAUAAAA 1198 TTTTATTA GGCTAGCTAC 5298 GUAAUGUA A UAAAAAUA 1199 TATTTTA GGCTAGCTAC 5304 UAAUAAAA A UAGUUACA 1200 TGTAACTA GGCTAGCTAC	CAACGA TACATTAC CAACGA TTTTATTA CAACGA TATTTTTA	3527 3528
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5304 UAAUAAAA A UAGUUACA 1200 TGTAACTA GGCTAGCTAG	CAACGA TITTATTA CAACGA TATTITTA	
CACTOTAL CACTOTAL CACTOTAL CACTOTAL		2522 1
	CAACGA AACTATTT	3529
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5313 UAGUUACA G UGACUAUG 1203 CATAGTCA GGCTAGCTAG	CAACGA TGTAACTA	3531
5316 UUACAGUG A CUAUGAGU 1204 ACTCATAG GGCTAGCTAG	CAACGA CACTGTAA	3532
5319 CAGUGACU A UGAGUGUG 1205 CACACTCA GGCTAGCTAG		3533
5323 GACUAUGA G UGUGUAUU 1206 AATACACA GGCTAGCTA		3534
5325 CUAUGAGU G UGUAUUUA 1207 TAAATACA GGCTAGCTA		3535
5327 AUGAGUGU G UAUUUAUU 1208 AATAAATA GGCTAGCTA		3536
5327 AGGREGOGO G GREGOTAGO TAGAATAAA GGCTAGCTAG		3537
5329 GAGOGOGU A GUGARGGA 1210 TGCATGAA GGCTAGCTA		3538
5337 AUJUAUUC A UGCAAAUU 1211 AATTTGCA GGCTAGCTA		3539
5337 AUGUACO II GUALIUU 1212 CAAATTI GGCTAGCTA		3540
ACTUAL AC		3541
5343 UCAUGCAA A UUUGAACU 1213 AGIICAAA GGCIAGCIA 5349 AAAUUUGA A CUGUUUGC 1214 GCAAACAG GGCTAGCTA		3542
5352 UUUGAACU G UUUGCCCC 1215 GGGGCAAA GGCTAGCTA		3543
TOTAL TOTAL TOTAL MUMICOCCC COCTACCTA		3544
THE TOTAL CONTROL CONT		3545
5364 GCCCCGAA A UGGAUAUG 1217 CATATCCA GGCTAGCTA 5368 CGAAAUGG A UAUGGAUA 1218 TATCCATA GGCTAGCTA		3546
5370 AAAUGGAU A UGGAUACU 1219 AGTATCCA GGCTAGCTA		3547
5374 GGAUAUGG A UACUUUAU 1220 ATAAAGTA GGCTAGCTA		3548
5376 AUAUGGAU A CUUUAUAA 1221 TTATAAAG GGCTAGCTA	CAACGA ATCCATAT	3549
5381 GAUACUUU A UAAGCCAU 1222 ATGGCTTA GGCTAGCTA	CAACGA AAAGTATC	3550
5385 CUUUAUAA G CCAUAGAC 1223 GTCTATGG GGCTAGCTA	CAACGA TTATAAAG	3551
5388 UAUAAGCC A UAGACACU 1224 AGTGTCTA GGCTAGCTA	ACAACGA GGCTTATA	3552
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5412 ACCAGUGA A UCUUUUAU 1232 ATAAAAGA GGCTAGCT	ACAACGA TCACTGGT	3560
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5424 UUUAUGCA G CUUGUUAG 1235 CTAACAAG GGCTAGCT		3563
5428 UGCAGCUU G UUAGAAGU 1236 ACTTCTAA GGCTAGCT		3564
5435 UGUUAGAA G UAUCCUUU 1237 AAAGGATA GGCTAGCT		3565
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5457 UCUAAAAG G UGCUGUGG 1240 CCACAGCA GGCTAGCT		3568
5459 UAAAAGGU G CUGUGGAU 1241 ATCCACAG GGCTAGCT		3569
5462 AAGGUGCU G UGGAUAUU 1242 AATATCCA GGCTAGCT		3570
5466 UGCUGUGG A UAUUAUGU 1243 ACATAATA GGCTAGCT		3571
5468 CUGUGGAU A UUAUGUAA 1244 TTACATAA GGCTAGCT	ACAACGA ATCCACAG	3572



5471	UGGAUAUU A UGUAAAGG	1245	CCTTTACA GGCTAGCTACAACGA AATATCCA	3573
5473	GAUAUUAU G UAAAGGCG	1246	CGCCTTTA GGCTAGCTACAACGA ATAATATC	3574
5479	AUGUAAAG G CGUGUUUG	1247	CAAACACG GGCTAGCTACAACGA CTTTACAT	3575
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5483	AAAGGCGU G UUUGCUUA	1249	TAAGCAAA GGCTAGCTACAACGA ACGCCTTT	3577
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5493	UUGCUUAA A CAAUUUUC	1251	GAAAATTG GGCTAGCTACAACGA TTAAGCAA	3579
5496		1252	ATGGAAAA GGCTAGCTACAACGA TGTTTAAG	3580
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5513	AUUUAGAA G UAGAUGCA	1255	TGCATCTA GGCTAGCTACAACGA TTCTAAAT	3583
5517		1256	GTTTTGCA GGCTAGCTACAACGA CTACTTCT	3584
5519	·   · · · · · · · · · · · · · · · · · ·	1257	TTGTTTTG GGCTAGCTACAACGA ATCTACTT	3585
5524	GAUGCAAA A CAAAUCUG	1258	CAGATTTG GGCTAGCTACAACGA TTTGCATC	
5528	·	1259	AAGGCAGA GGCTAGCTACAACGA TTGTTTTG	3586
5532	ACAAAUCU G CCUUUAUG	1260		3587
5538	CUGCCUUU A UGACAAAA	1260	CATAAAGG GGCTAGCTACAACGA AGATTTGT	3588
5541	CCUUUAUG A CAAAAAA		TTTTGTCA GGCTAGCTACAACGA AAAGGCAG	3589
5549	<del></del>	1262	TTTTTTG GGCTAGCTACAACGA CATAAAGG	3590
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5559	AUAGGAUA A CAUUAUUU	1265	AAATAATG GGCTAGCTACAACGA TATCCTAT	3593
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5584	UUUUAUCA A UAAGGUAA	1271	TTACCTTA GGCTAGCTACAACGA TGATAAAA	3599
5589	UCAAUAAG G UAAUUGAU	1272	ATCAATTA GGCTAGCTACAACGA CTTATTGA	3600
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5600	AUUGAUAC A CAACAGGU	1276	ACCTGTTG GGCTAGCTACAACGA GTATCAAT	3604
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5630	GCCCAAAG G UAGCAGCA	1282	TGCTGCTA GGCTAGCTACAACGA CTTTGGGC	3610
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5636	AGGUAGCA G CAGCAACA	1284	TGTTGCTG GGCTAGCTACAACGA TGCTACCT	3612
5639	UAGCAGCA G CAACAUUA	1285	TAATGTTG GGCTAGCTACAACGA TGCTGCTA	3613
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5644	GCAGCAAC A UUAAUAAU	1287	ATTATTAA GGCTAGCTACAACGA GTTGCTGC	3615
5648	CAACAUUA A UAAUGGAA	1288	TTCCATTA GGCTAGCTACAACGA TAATGTTG	3616
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5657	UAAUGGAA A UAAUUGAA	1290	TTCAATTA GGCTAGCTACAACGA TTCCATTA	3618
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5668	AUUGAAUA G UUAGUUAU	1293	ATAACTAA GGCTAGCTACAACGA TATTCAAT	3621
5672	AAUAGUUA G UUAUGUAU	1294	ATACATAA GGCTAGCTACAACGA TAACTATT	3622
5675	AGUUAGUU A UGUAUGUU	1295	AACATACA GGCTAGCTACAACGA AACTAACT	3623
5677	UUAGUUAU G UAUGUUAA	1296	TTAACATA GGCTAGCTACAACGA ATAACTAA	3624

5679         AGUUAUGU A UGUUAAUG         1297         CATTAACA GGCTAGCTACAACGA ACATAACT         3625           5681         UUAUGUAU G UUAAUGCC         1298         GGCATTAA GGCTAGCTACAACGA ATACATAA         3626           5685         GUAUGUUA A UGCCAGUC         1299         GACTGGCA GGCTAGCTACAACGA ATACATAC         3627           5687         AUGUUAAU G CCAGUCAC         1300         GTGACTGG GGCTAGCTACAACGA ATTAACAT         3628           5691         UAAUGCCA G UCACCAGC         1301         GCTGGTAG GGCTAGCTACAACGA GACTGGCA         3630           5694         UGCCAGUC A CCAGCAGG         1302         CCTGCTGG GGCTAGCTACAACGA GACTGGCA         3630           5698         AGUCACCA G CAGGCUAU         1303         ATAGCCTG GGCTAGCTACAACGA GACTGGCA         3631           5702         ACCAGCAG G CUAUUUCA         1304         TGAAATAG GGCTAGCTACAACGA CTGCTGGT         3632           5713         AUUUCAAGG I UUUCAAGG         1305         CCTTGAAA GGCTAGCTACAACGA CTGCTGCT         3633           5720         GGUCAGAA G UAAUGACU         1307         AGTCATTA GGCTAGCTACAACGA TTCTTCTG         3635           5723         CAGAAGUA A UGACUCCA         1308         TGGAGTCA GGCTAGCTACAACGA TTCTTCTG         3637           5731         AUGACUCC A UACAUAUU         1310         AATATATA GGCTAGCTACAACGA CATACTT					
5681         UUAUGUAU G UUAAUGCC         1298         GGCATTAA GGCTAGCTACAACGA ATACATAA         3626           5685         GUAUGUUA A UGCCAGUC         1299         GACTGGCA GGCTAGCTACAACGA TAACATAC         3627           5687         AUGUUAAU G CCAGUCAC         1300         GTGACTGG GGCTAGCTACAACGA ATTAACAT         3628           5691         UAAUGCCA G UCACCAGC         1301         GCTGGTGA GGCTACCAACGA TGGCTATA         3629           5694         UGCCAGUC A CCAGCAGG         1302         CCTGCTGG GGCTACCAACGA GACTGGCA         3630           5698         AGUCACCA G CAGGCUAU         1303         ATAGCCTG GGCTACCAACGA TGGTGACT         3631           5702         ACCAGCAG G CUAUUUCA         1304         TGAAATAG GGCTACCAACGA CTGCTGT         3632           5705         AGCAGGCU A UUUCAAGG         1305         CCTTGAAA GGCTACCAACGA TGCTGCT         3633           5713         AUUCAAGG G UCAGAAGU         1306         ACTTCTGA GGCTACCAACGA TTCTGACC         3635           5720         GGUCAGAA G UAAUGACU         1307         AGTCATTA GGCTACAACGA TTCTGC         3635           5721         AGAGAGUA A UGACUCCA         1308         TGGAGTCA GGCTACCAACGA TTCTTCT         3636           5726         AAGUAAUG A CUCCAUAC         1309         GTATGGAG GGCTACCAACGA CATTACTT         3638	5679	ACHIAIGH A UGINAAUG	1297	CATTAACA GGCTAGCTACAACGA ACATAACT	3625
5685         GUAUGUUA A UGCCAGUC         1299         GACTGGCA GGCTAGCTACAACGA TAACATAC         3627           5687         AUGUUAAU G CCAGUCAC         1300         GTGACTGG GGCTAGCTACAACGA ATTAACAT         3628           5691         UAAUGCCA G UCACCAGC         1301         GCTGGTGA GGCTAGCTACAACGA TGGCATTA         3629           5694         UGCCAGUC A CCAGCAGG         1302         CCTGCTGG GGCTAGCTACAACGA GACTGGCA         3630           5698         AGUCACCA G CAGGCUAU         1303         ATAGCCTG GGCTAGCTACAACGA TGGTGACT         3631           5702         ACCAGCAG G CUAUUUCA         1304         TGAAATAG GGCTAGCTACAACGA CTGCTGGT         3632           5705         AGCAGGCU A UUUCAAGG         1305         CCTTGAAA GGCTAGCTACAACGA AGCCTGCT         3633           5713         AUUUCAAGG G UCAGAAGU         1306         ACTTCTGA GGCTAGCTACAACGA TCTGAACT         3634           5720         GGUCAGAA G UAAUGACU         1307         AGTCATATA GGCTAGCTACAACGA TCTTGACC         3635           5723         CAGAAGUA A UGACUCCA         1308         TGGAGTCA GGCTAGCTACAACGA TACTTCTG         3636           5731         AUGACUCC A UACAUAUU         1310         AATATATG GGCTAGCTACAACGA CATTACTT         3638           5733         GACUCCAU A CAUAUUAU         1311         ATAAATATA GGCTAGCTACAACGA ATGAATGAG </td <td></td> <td></td> <td>1298</td> <td>GGCATTAA GGCTAGCTACAACGA ATACATAA</td> <td>3626</td>			1298	GGCATTAA GGCTAGCTACAACGA ATACATAA	3626
5687         AUGUUAAU G CCAGUCAC         1300         GTGACTGG GGCTAGCTACAACGA ATTAACAT         3628           5691         UAAUGCCA G UCACCAGC         1301         GCTGGTGA GGCTAGCTACAACGA TGGCATTA         3629           5694         UGCCAGUC A CCAGCAGG         1302         CCTGCTGG GGCTAGCTACAACGA GACTGGCA         3630           5698         AGUCACCA G CAGGCUAU         1303         ATAGCCTG GGCTAGCTACAACGA TGGTGACT         3631           5702         ACCAGCAG G CUAUUUCA         1304         TGAAATAG GGCTAGCTACAACGA CTGCTGCT         3632           5705         AGCAGGCU A UUUCAAGG         1305         CCTTGAAA GGCTAGCTACAACGA AGCCTGCT         3633           5713         AUUUCAAG G UCAGAAGU         1306         ACTTCTGA GGCTAGCTACAACGA TCTTGACC         3635           5720         GGUCAGAA G UAAUGACU         1307         AGTCATTA GGCTAGCTACAACGA TCTTCTG         3636           5723         CAGAAGUA A UGACUCCA         1308         TGGAGTCA GGCTAGCTACAACGA TACTTCTG         3637           5731         AUGACUCC A UACAUAUU         1310         ATATATG GGCTAGCTACAACGA GTACTTCTT         3638           5733         GACUCCAU A CAUAUUAU         1311         ATAAATAT GGCTAGCTACAACGA ATGGAGT         3640           5735         CUCCAUAC A UAUUAUU         1312         AAATATAT GGCTAGCTACAACGA ATGTATGG		0011000110	1299	GACTGGCA GGCTAGCTACAACGA TAACATAC	3627
5691         UAAUGCCA G UCACCAGC         1301         GCTGGTGA GGCTAGCTACAACGA TGGCATTA         3629           5694         UGCCAGUC A CCAGCAGG         1302         CCTGCTGG GGCTAGCTACAACGA GACTGGCA         3630           5698         AGUCACCA G CAGGCUAU         1303         ATAGCCTG GGCTAGCTACAACGA TGGTGACT         3631           5702         ACCAGCAG G CUAUUUCA         1304         TGAAATAG GGCTAGCTACAACGA CTGCTGGT         3632           5705         AGCAGGCU A UUUCAAGG         1305         CCTTGAAA GGCTAGCTACAACGA AGCCTGCT         3633           5713         AUUUCAAG G UCAGAAGU         1306         ACTTCTGA GGCTAGCTACAACGA CTTGAAAT         3634           5720         GGUCAGAA G UAAUGACU         1307         AGTCATTA GGCTAGCTACAACGA TTCTGGACC         3635           5723         CAGAAGUA A UGACUCCA         1308         TGGAGTCA GGCTAGCTACAACGA TACTTCTG         3636           5726         AAGUAAUG A CUCCAUAC         1309         GTATGGAG GGCTAGCTACAACGA CATTACTT         3637           5731         AUGACUCC A UACAUUAU         1310         AATATGTA GGCTAGCTACAACGA GGAGTCAT         3638           5733         GACUCCAU A CAUAUUAU         1311         ATAAATAT GGCTAGCTACAACGA ATGGAGT         3640           5737         CCCAUACA UAUUAUUU         1312         AAATAATA GGCTAGCTACAACGA ATATAGT			1300	GTGACTGG GGCTAGCTACAACGA ATTAACAT	3628
5694         UGCCAGUC A CCAGCAGG         1302         CCTGCTGG GGCTAGCTACAACGA GACTGCCA         3630           5698         AGUCACCA G CAGGCUAU         1303         ATAGCCTG GGCTAGCTACAACGA TGGTGACT         3631           5702         ACCAGCAG G CUAUUUCA         1304         TGAAATAG GGCTAGCTACAACGA CTGCTGGT         3632           5705         AGCAGGCU A UUUCAAGG         1305         CCTTGAAA GGCTACCAACGA AGCCTGCT         3633           5713         AUUUCAAG G UCAGAAGU         1306         ACTTCTGA GGCTAGCTACAACGA CTTGAAAT         3634           5720         GGUCAGAA G UAAUGACU         1307         AGTCATTA GGCTAGCTACAACGA TTCTGACC         3635           5723         CAGAAGUA A UGACUCCA         1308         TGGAGTCA GGCTAGCTACAACGA TACTTCTG         3636           5726         AAGUAAUG A CUCCAUAC         1309         GTATGGAG GGCTAGCTACAACGA CATTACTT         3637           5731         AUGACUCC A UACAUAUU         1310         AATATGTA GGCTAGCTACAACGA GGAGTCAT         3638           5733         GACUCCAU A CAUAUUAU         1311         ATAATATG GGCTAGCTACAACGA ATGGAGTC         3639           5735         CUCCAUAC A UAUUUAUU         1312         AAATAATA GGCTACCAACGA ATGTATGG         3640           5737         CCAUACAU A UUUAUUU         1313         ATAAATAA GGCTACCAACGA ATATGTA <td< td=""><td><del></del></td><td>1100001111</td><td>1301</td><td>GCTGGTGA GGCTAGCTACAACGA TGGCATTA</td><td>3629</td></td<>	<del></del>	1100001111	1301	GCTGGTGA GGCTAGCTACAACGA TGGCATTA	3629
5698         AGUCACCA G CAGGCUAU         1303         ATAGCCTG GGCTAGCTACAACGA TGGTGACT         3631           5702         ACCAGCAG G CUAUUUCA         1304         TGAAATAG GGCTAGCTACAACGA CTGCTGGT         3632           5705         AGCAGGCU A UUUCAAGG         1305         CCTTGAAA GGCTAGCTACAACGA AGCCTGCT         3633           5713         AUUUCAAG G UCAGAAGU         1306         ACTTCTGA GGCTACCAACGA CTTGAAAT         3634           5720         GGUCAGAA G UAAUGACU         1307         AGTCATTA GGCTAGCTACAACGA TTCTTGACC         3635           5723         CAGAAGUA A UGACUCCA         1308         TGGAGTCA GGCTAGCTACAACGA TACTTCTG         3636           5726         AAGUAAUG A CUCCAUAC         1309         GTATGGAG GGCTAGCTACAACGA CATTACTT         3637           5731         AUGACUCC A UACAUAUU         1310         AATAATTA GGCTAGCTACAACGA GGAGTCAT         3638           5733         GACUCCAU A CAUAUUAU         1311         ATAATATA GGCTAGCTACAACGA ATGAGTC         3649           5735         CUCCAUAC A UAUUAUUU         1312         AAATAATA GGCTAGCTACAACGA ATGTATGG         3641           5740         UACAUAUU A UUUAUUUC         1314         GAAATAAA GGCTAGCTACAACGA AATAATA         3642           5750         UUAUUUU A UAACUACA         1316         TGTAGTTA GGCTACAACGA AAATAATA         <		0.0.000	1302	CCTGCTGG GGCTAGCTACAACGA GACTGGCA	3630
5702         ACCAGCAG         G CUAUUUCA         1304         TGAAATAG         GGCTAGCTACAACGA         CTGCTGGT         3632           5705         AGCAGGCU         A UUUCAAGG         1305         CCTTGAAA         GGCTAGCTACAACGA         AGCCTGCT         3633           5713         AUUUCAAG         G UCAGAAGU         1306         ACTTCTGA         GGCTAGCTACAACGA         CTTGAAAT         3634           5720         GGUCAGAA         G UAAUGACU         1307         AGTCATTA         GGCTAGCTACAACGA         TTCTGACC         3635           5723         CAGAAGUA         A UGACUCCA         1308         TGGAGTCA         GGCTAGCTACAACGA         TACTTCTG         3636           5726         AAGUAAUG         A CUCCAUAC         1309         GTATGGAG         GGCTAGCTACAACGA         CATTACTT         3637           5731         AUGACUCCA         A UACAUAUU         1310         AATAATGTA         GGCTAGCTACAACGA         ATGGAGTCA         3639           5733         GACUCCAU         A CAUAUUU         1311         ATAATATA         GGCTAGCTACAACGA         ATGTATGGAG         3640           5735         CUCCAUAC         A UUAUUUU         1312         AAATAATA         GGCTAGCTACAACGA         ATTATGGAG         3641           574			1303	ATAGCCTG GGCTAGCTACAACGA TGGTGACT	3631
5705 AGCAGGCU A UUUCAAGG 1305 CCTTGAAA GGCTAGCTACAACGA AGCCTGCT 3633 5713 AUUUCAAG G UCAGAAGU 1306 ACTTCTGA GGCTAGCTACAACGA CTTGAAAT 3634 5720 GGUCAGAA G UAAUGACU 1307 AGTCATTA GGCTAGCTACAACGA TTCTGACC 3635 5723 CAGAAGUA A UGACUCCA 1308 TGGAGTCA GGCTAGCTACAACGA TACTTCTG 3636 5726 AAGUAAUG A CUCCAUAC 1309 GTATGGAG GGCTAGCTACAACGA TACTTCTG 3637 5731 AUGACUCC A UACAUAUU 1310 AATATGTA GGCTAGCTACAACGA GGAGTCAT 3638 5733 GACUCCAU A CAUAUUAU 1311 ATAATATG GGCTAGCTACAACGA ATGGAGTC 3639 5735 CUCCAUAC A UAUUUAUU 1312 AAATAATA GGCTAGCTACAACGA GTATGAGG 3640 5737 CCAUACAU A UUAUUUUU 1313 ATAAATAA GGCTAGCTACAACGA ATGTATGG 3641 5740 UACAUAUU A UUUAUUUC 1314 GAAATAAA GGCTAGCTACAACGA AATATGTA 3642 5744 UAUUAUUU A UUUCUAUA 1315 TATAGAAA GGCTAGCTACAACGA AAATAATA 3643 5750 UUAUUUCU A UAACUACA 1316 TGTAGTTA GGCTAGCTACAACGA AGAAATAA 3644 5750 UUAUUUCU A UAACUACA 1316 TGTAGTTA GGCTAGCTACAACGA AGAAATAA 3644 5756 CUAUAACU A CAUUUAAA 1318 TTTAAATG GGCTAGCTACAACGA AGAAATAA 3645 5758 AUAACUAC A UUUAAAUC 1319 GATTTAAA GGCTAGCTACAACGA GTATTAGA 3646 5758 AUAACUAC A UUUAAAUC 1319 GATTTAAA GGCTAGCTACAACGA GTAGTTAT 3647 5764 ACAUUUAA A UCAUUACC 1320 GGTAATGA GGCTAGCTACAACGA TATAAATGT 3648			1304	TGAAATAG GGCTAGCTACAACGA CTGCTGGT	3632
5713 AUUUCAAG G UCAGAAGU 1306 ACTTCTGA GGCTAGCTACAACGA CTTGAAAT 3634 5720 GGUCAGAA G UAAUGACU 1307 AGTCATTA GGCTAGCTACAACGA TTCTGACC 3635 5723 CAGAAGUA A UGACUCCA 1308 TGGAGTCA GGCTAGCTACAACGA TACTTCTG 3636 5726 AAGUAAUG A CUCCAUAC 1309 GTATGGAG GGCTAGCTACAACGA CATTACTT 3637 5731 AUGACUCC A UACAUAUU 1310 AATATGTA GGCTAGCTACAACGA GGAGTCAT 3638 5733 GACUCCAU A CAUAUUAU 1311 ATAATATG GGCTAGCTACAACGA ATGGAGTC 3639 5735 CUCCAUAC A UAUUAUUU 1312 AAATAATA GGCTAGCTACAACGA GTATGGAG 3640 5737 CCAUACAU A UUAUUUAU 1313 ATAAATAA GGCTAGCTACAACGA ATGTATGG 3641 5740 UACAUAUU A UUUAUUUC 1314 GAAATAAA GGCTAGCTACAACGA AATATGTA 3642 5744 UAUUAUUU A UUUCUAUA 1315 TATAGAAA GGCTAGCTACAACGA AAATAATA 3643 5750 UUAUUUCU A UAACUACA 1316 TGTAGTTA GGCTAGCTACAACGA AAATAATA 3644 5750 UUAUUUCU A UAACUACA 1316 TGTAGTTA GGCTAGCTACAACGA AGAAATAA 3644 5750 UUAUUUCU A CAUAUUU 1317 AAATGTA GGCTAGCTACAACGA AGAAATAA 3645 5756 CUAUAACU A CAUUUAAA 1318 TTTAAATG GGCTAGCTACAACGA AGTTATAG 3646 5758 AUAACUAC A UUUAAAUC 1319 GATTTAAA GGCTAGCTACAACGA GTAGTTAT 3647 5764 ACAUUUAA A UCAUUACC 1320 GGTAATGA GGCTAGCTACAACGA TTATAATGT 3648		710-01-10-11-1	1305	CCTTGAAA GGCTAGCTACAACGA AGCCTGCT	3633
5720 GGUCAGAA G UAAUGACU 1307 AGTCATTA GGCTAGCTACAACGA TTCTGACC 3635 5723 CAGAAGUA A UGACUCCA 1308 TGGAGTCA GGCTAGCTACAACGA TACTTCTG 3636 5726 AAGUAAUG A CUCCAUAC 1309 GTATGGAG GGCTAGCTACAACGA CATTACTT 3637 5731 AUGACUCC A UACAUAUU 1310 AATATGTA GGCTAGCTACAACGA GGAGTCAT 3638 5733 GACUCCAU A CAUAUUAU 1311 ATAATATG GGCTAGCTACAACGA ATGGAGTC 3639 5735 CUCCAUAC A UAUUAUUU 1312 AAATAATA GGCTAGCTACAACGA GTATGGAG 3640 5737 CCAUACAU A UUAUUUAU 1313 ATAAATAA GGCTAGCTACAACGA ATGTATGG 3641 5740 UACAUAUU A UUUAUUUC 1314 GAAATAAA GGCTAGCTACAACGA AATATGTA 3642 5744 UAUUAUUU A UUUCUAUA 1315 TATAGAAA GGCTAGCTACAACGA AAATAATA 3643 5750 UUAUUUCU A UAACUACA 1316 TGTAGTTA GGCTAGCTACAACGA AGAAATAA 3644 5753 UUUCUAUA A CUACAUUU 1317 AAATGTAG GGCTAGCTACAACGA AGAAATAA 3645 5756 CUAUAACU A CAUUUAAA 1318 TTTAAATG GGCTAGCTACAACGA AGTTATAG 3646 5758 AUAACUAC A UUUAAAUC 1319 GATTTAAA GGCTAGCTACAACGA AGTTATAG 3647 5764 ACAUUUAA A UCAUUACC 1320 GGTAATGA GGCTAGCTACAACGA TTAAATGT 3648	<u> </u>	1.04.0000	1306	ACTTCTGA GGCTAGCTACAACGA CTTGAAAT	3634
5723         CAGAAGUA A UGACUCCA         1308         TGGAGTCA GGCTAGCTACAACGA TACTTCTG         3636           5726         AAGUAAUG A CUCCAUAC         1309         GTATGGAG GGCTAGCTACAACGA CATTACTT         3637           5731         AUGACUCC A UACAUAUU         1310         AATATGTA GGCTAGCTACAACGA GGAGTCAT         3638           5733         GACUCCAU A CAUAUUAU         1311         ATAATATG GGCTAGCTACAACGA ATGGAGTC         3639           5735         CUCCAUAC A UAUUAUUU         1312         AAATAATA GGCTAGCTACAACGA GTATGGAG         3640           5737         CCAUACAU A UUAUUUUU         1313         ATAAATAA GGCTAGCTACAACGA ATGTATGG         3641           5740         UACAUAUU A UUUAUUUC         1314         GAAATAAA GGCTAGCTACAACGA AATATGTA         3642           5744         UAUUAUUU A UUACUAUA         1315         TATAGAAA GGCTAGCTACAACGA AAATAATA         3643           5750         UUAUUUCU A UAACUACA         1316         TGTAGTTA GGCTAGCTACAACGA AGAAATAA         3644           5753         UUUCUAUA A CUACAUUU         1317         AAATGTAG GGCTAGCTACAACGA TATAGAAA         3645           5756         CUAUAACU A CAUUUAAA         1318         TTTAAATG GGCTAGCTACAACGA AGTTATA         3646           5758         AUAACUAC A UUUAAAUC         1319         GATTTAAA GGCTAGCTACAACGA TTAAATGT				AGTCATTA GGCTAGCTACAACGA TTCTGACC	3635
5726         AAGUAAUG         A CUCCAUAC         1309         GTATGGAG         GGCTAGCTACAACGA         CATTACTT         3637           5731         AUGACUCC         A UACAUAUU         1310         AATATGTA         GGCTAGCTACAACGA         GGGAGTCAT         3638           5733         GACUCCAU         A CAUAUUAU         1311         ATAAATAG         GGCTAGCTACAACGA         ATGGAGTC         3639           5735         CUCCAUAC         A UAUUAUUU         1312         AAATAATA         GGCTAGCTACAACGA         GTATGGAG         3640           5737         CCAUACAU         A UUAUUUUU         1313         ATAAATAA         GGCTAGCTACAACGA         AATATGTA         3641           5740         UACAUAUU         A UUUAUUUC         1314         GAAATAAA         GGCTAGCTACAACGA         AATATGTA         3642           5744         UAUUAUUU         A UUUCUAUA         1315         TATAGAAA         GGCTAGCTACAACGA         AAATAATA         3643           5750         UUAUUUUU         A UAACUACA         1316         TGTAGTTA         GGCTAGCTACAACGA         AGAAATAA         3644           5753         UUUCUAUA         A CAUUUAA         1317         AAATGTAG         GGCTAGCTACAACGA         AGTTATAG         3646           5756 <td></td> <td></td> <td>1308</td> <td>TGGAGTCA GGCTAGCTACAACGA TACTTCTG</td> <td>3636</td>			1308	TGGAGTCA GGCTAGCTACAACGA TACTTCTG	3636
5731 AUGACUCC A UACAUAUU 1310 AATATGTA GGCTAGCTACAACGA GGAGTCAT 3638 5733 GACUCCAU A CAUAUUAU 1311 ATAATATG GGCTAGCTACAACGA ATGGAGTC 3639 5735 CUCCAUAC A UAUUAUUU 1312 AAATAATA GGCTAGCTACAACGA GTATGGAG 3640 5737 CCAUACAU A UUUAUUUUU 1313 ATAAATAA GGCTAGCTACAACGA ATGTATGG 3641 5740 UACAUAUU A UUUAUUUC 1314 GAAATAAA GGCTAGCTACAACGA AATATGTA 3642 5744 UAUUAUUU A UUUCUAUA 1315 TATAGAAA GGCTAGCTACAACGA AATATATA 3643 5750 UUAUUUCU A UAACUACA 1316 TGTAGTTA GGCTAGCTACAACGA AGAAATAA 3644 5753 UUUCUAUA A CUACAUUU 1317 AAATGTAG GGCTAGCTACAACGA TATAGAAA 3645 5756 CUAUAACU A CAUUUAAA 1318 TTTAAATG GGCTAGCTACAACGA AGTTATAG 3646 5758 AUAACUAC A UUUAAAUC 1319 GATTTAAA GGCTAGCTACAACGA GTAGTTAT 3647 5764 ACAUUUAA A UCAUUACC 1320 GGTAATGA GGCTAGCTACAACGA TTAAATGT 3648	<del></del>		1309	GTATGGAG GGCTAGCTACAACGA CATTACTT	3637
5733 GACUCCAU A CAUAUUAU 1311 ATAATATG GGCTAGCTACAACGA ATGGAGTC 3639 5735 CUCCAUAC A UAUUAUUU 1312 AAATAATA GGCTAGCTACAACGA GTATGGAG 3640 5737 CCAUACAU A UUAUUUAU 1313 ATAAATAA GGCTAGCTACAACGA ATGTATGG 3641 5740 UACAUAUU A UUUAUUUC 1314 GAAATAAA GGCTAGCTACAACGA AATATGTA 3642 5744 UAUUAUUU A UUUCUAUA 1315 TATAGAAA GGCTAGCTACAACGA AAATAATA 3643 5750 UUAUUUCU A UAACUACA 1316 TGTAGTTA GGCTAGCTACAACGA AGAAATAA 3644 5753 UUUCUAUA A CUACAUUU 1317 AAATGTAG GGCTAGCTACAACGA TATAGAAA 3645 5756 CUAUAACU A CAUUUAAA 1318 TTTAAATG GGCTAGCTACAACGA AGTTATAG 3646 5758 AUAACUAC A UUUAAAUC 1319 GATTTAAA GGCTAGCTACAACGA GTAGTTAT 3647 5764 ACAUUUAA A UCAUUACC 1320 GGTAATGA GGCTAGCTACAACGA TTAAATGT 3648		ALIGORIUS II COLUMN	1310	AATATGTA GGCTAGCTACAACGA GGAGTCAT	3638
5735 CUCCAUAC A UAUUAUUU 1312 AAATAATA GGCTAGCTACAACGA GTATGGAG 3640 5737 CCAUACAU A UUAUUUAU 1313 ATAAATAA GGCTAGCTACAACGA ATGTATGG 3641 5740 UACAUAUU A UUUAUUUC 1314 GAAATAAA GGCTAGCTACAACGA AATATGTA 3642 5744 UAUUAUUU A UUUCUAUA 1315 TATAGAAA GGCTAGCTACAACGA AAATAATA 3643 5750 UUAUUUCU A UAACUACA 1316 TGTAGTTA GGCTAGCTACAACGA AGAAATAA 3644 5753 UUUCUAUA A CUACAUUU 1317 AAATGTAG GGCTAGCTACAACGA TATAGAAA 3645 5756 CUAUAACU A CAUUUAAA 1318 TTTAAATG GGCTAGCTACAACGA AGTTATAG 3646 5758 AUAACUAC A UUUAAAUC 1319 GATTTAAA GGCTAGCTACAACGA GTAGTTAT 3647 5764 ACAUUUAA A UCAUUACC 1320 GGTAATGA GGCTAGCTACAACGA TTAAATGT 3648			1311	ATAATATG GGCTAGCTACAACGA ATGGAGTC	3639
5737 CCAUACAU A UUAUUUAU 1313 ATAAATAA GGCTAGCTACAACGA ATGTATGG 3641 5740 UACAUAUU A UUUAUUUC 1314 GAAATAAA GGCTAGCTACAACGA AATATGTA 3642 5744 UAUUAUUU A UUUCUAUA 1315 TATAGAAA GGCTAGCTACAACGA AAATAATA 3643 5750 UUAUUUCU A UAACUACA 1316 TGTAGTTA GGCTAGCTACAACGA AGAAATAA 3644 5753 UUUCUAUA A CUACAUUU 1317 AAATGTAG GGCTAGCTACAACGA TATAGAAA 3645 5756 CUAUAACU A CAUUUAAA 1318 TTTAAATG GGCTAGCTACAACGA AGTTATAG 3646 5758 AUAACUAC A UUUAAAUC 1319 GATTTAAA GGCTAGCTACAACGA GTAGTTAT 3647 5764 ACAUUUAA A UCAUUACC 1320 GGTAATGA GGCTAGCTACAACGA TTAAATGT 3648			1312	AAATAATA GGCTAGCTACAACGA GTATGGAG	3640
5740 UACAUAUU A UUUAUUUC 1314 GAAATAAA GGCTAGCTACAACGA AATATGTA 3642 5744 UAUUAUUU A UUUCUAUA 1315 TATAGAAA GGCTAGCTACAACGA AAATAATA 3643 5750 UUAUUUCU A UAACUACA 1316 TGTAGTTA GGCTAGCTACAACGA AGAAATAA 3644 5753 UUUCUAUA A CUACAUUU 1317 AAATGTAG GGCTAGCTACAACGA TATAGAAA 3645 5756 CUAUAACU A CAUUUAAA 1318 TTTAAATG GGCTAGCTACAACGA AGTTATAG 3646 5758 AUAACUAC A UUUAAAUC 1319 GATTTAAA GGCTAGCTACAACGA GTAGTTAT 3647 5764 ACAUUUAA A UCAUUACC 1320 GGTAATGA GGCTAGCTACAACGA TTAAATGT 3648	<del></del>		1313	ATAAATAA GGCTAGCTACAACGA ATGTATGG	3641
5744 UAUUAUUU A UUUCUAUA 1315 TATAGAAA GGCTAGCTACAACGA AAATAATA 3643 5750 UUAUUUCU A UAACUACA 1316 TGTAGTTA GGCTAGCTACAACGA AGAAATAA 3644 5753 UUUCUAUA A CUACAUUU 1317 AAATGTAG GGCTAGCTACAACGA TATAGAAA 3645 5756 CUAUAACU A CAUUUAAA 1318 TTTAAATG GGCTAGCTACAACGA AGTTATAG 3646 5758 AUAACUAC A UUUAAAUC 1319 GATTTAAA GGCTAGCTACAACGA GTAGTTAT 3647 5764 ACAUUUAA A UCAUUACC 1320 GGTAATGA GGCTAGCTACAACGA TTAAATGT 3648			1314	GAAATAAA GGCTAGCTACAACGA AATATGTA	3642
5750 UUAUUUCU A UAACUACA 1316 TGTAGTTA GGCTAGCTACAACGA AGAAATAA 3644 5753 UUUCUAUA A CUACAUUU 1317 AAATGTAG GGCTAGCTACAACGA TATAGAAA 3645 5756 CUAUAACU A CAUUUAAA 1318 TTTAAATG GGCTAGCTACAACGA AGTTATAG 3646 5758 AUAACUAC A UUUAAAUC 1319 GATTTAAA GGCTAGCTACAACGA GTAGTTAT 3647 5764 ACAUUUAA A UCAUUACC 1320 GGTAATGA GGCTAGCTACAACGA TTAAATGT 3648	<del></del>		1315	TATAGAAA GGCTAGCTACAACGA AAATAATA	3643
5753 UUUCUAUA A CUACAUUU 1317 AAATGTAG GGCTAGCTACAACGA TATAGAAA 3645 5756 CUAUAACU A CAUUUAAA 1318 TTTAAATG GGCTAGCTACAACGA AGTTATAG 3646 5758 AUAACUAC A UUUAAAUC 1319 GATTTAAA GGCTAGCTACAACGA GTAGTTAT 3647 5764 ACAUUUAA A UCAUUACC 1320 GGTAATGA GGCTAGCTACAACGA TTAAATGT 3648			1316	TGTAGTTA GGCTAGCTACAACGA AGAAATAA	3644
5756 CUAUAACU A CAUUUAAA 1318 TTTAAATG GGCTAGCTACAACGA AGTTATAG 3646 5758 AUAACUAC A UUUAAAUC 1319 GATTTAAA GGCTAGCTACAACGA GTAGTTAT 3647 5764 ACAUUUAA A UCAUUACC 1320 GGTAATGA GGCTAGCTACAACGA TTAAATGT 3648			1317	AAATGTAG GGCTAGCTACAACGA TATAGAAA	3645
5758 AUAACUAC A UUUAAAUC 1319 GATTTAAA GGCTAGCTACAACGA GTAGTTAT 3647 5764 ACAUUUAA A UCAUUACC 1320 GGTAATGA GGCTAGCTACAACGA TTAAATGT 3648		<del>                                     </del>	1318	TTTAAATG GGCTAGCTACAACGA AGTTATAG	3646
5764 ACAUUUAA A UCAUUACC 1320 GGTAATGA GGCTAGCTACAACGA TTAAATGT 3648			1319	GATTTAAA GGCTAGCTACAACGA GTAGTTAT	3647
2649			1320	GGTAATGA GGCTAGCTACAACGA TTAAATGT	3648
			1321	CCTGGTAA GGCTAGCTACAACGA GATTTAAA	3649

Input Sequence = NM\_004985. Cut Site = R/Y

Arm Length = 8. Core Sequence = GGCTAGCTACAACGA
NM\_004985 (Homo sapiens v-Ki-ras2 Kirsten rat sarcoma 2 viral oncogene homolog
(KRas2), mRNA; 5775 nt)

Table III: Human H-Ras DNAzyme and Target molecules

Pos	Substrate	Seq	DNAzyme	Seq
		ID		ID
. 9	GGAUCCCA G CCUUUCCC	1322	GGGAAAGG GGCTAGCTACAACGA TGGGATCC	3650
. 20	UUUCCCCA G CCCGUAGC	1323	GCTACGGG GGCTAGCTACAACGA TGGGGAAA	3651
. 24	CCCAGCCC G UAGCCCCG	1324	CGGGGCTA GGCTAGCTACAACGA GGGCTGGG	3652
. 27	AGCCCGUA G CCCCGGGA	1325	TCCCGGGG GGCTAGCTACAACGA TACGGGCT	3653
35	GCCCGGG A CCUCCGCG	1326	CGCGGAGG GGCTAGCTACAACGA CCCGGGGC	3654
41	GGACCUCC G CGGUGGGC	1327	GCCCACCG GGCTAGCTACAACGA GGAGGTCC	3655
. 44	CCUCCGCG G UGGGCGGC	1328	GCCGCCCA GGCTAGCTACAACGA CGCGGAGG	3656
48	CGCGGUGG G CGGCGCCG	1329	CGGCGCCG GGCTAGCTACAACGA CCACCGCG	3657
. 51	GGUGGGCG G CGCCGCGC	1330	GCGCGGCG GGCTAGCTACAACGA CGCCCACC	3658
. 53	UGGGCGGC G CCGCGCUG	1331	CAGCGCGG GGCTAGCTACAACGA GCCGCCCA	3659
56	GCGGCGCC G CGCUGCCG	1332	CGGCAGCG GGCTAGCTACAACGA GGCGCCGC	3660
58	GGCGCCGC G CUGCCGGC	1333	GCCGGCAG GGCTAGCTACAACGA GCGGCGCC	3661
61	GCCGCGCU G CCGGCGCA	1334	TGCGCCGG GGCTAGCTACAACGA AGCGCGGC	3662
65	CGCUGCCG G CGCAGGGA	1335	TCCCTGCG GGCTAGCTACAACGA CGGCAGCG	3663
67	CUGCCGGC G CAGGGAGG	1336	CCTCCCTG GGCTAGCTACAACGA GCCGGCAG	3664
76	CAGGGAGG G CCUCUGGU	1337	ACCAGAGG GGCTAGCTACAACGA CCTCCCTG	3665
83	GGCCUCUG G UGCACCGG	1338	CCGGTGCA GGCTAGCTACAACGA CAGAGGCC	3666
85	CCUCUGGU G CACCGGCA	1339	TGCCGGTG GGCTAGCTACAACGA ACCAGAGG	3667
87	UCUGGUGC A CCGGCACC	1340	GGTGCCGG GGCTAGCTACAACGA GCACCAGA	3668
91	GUGCACCG G CACCGCUG	1341	CAGCGGTG GGCTAGCTACAACGA CGGTGCAC	3669
93	GCACCGGC A CCGCUGAG	1342	CTCAGCGG GGCTAGCTACAACGA GCCGGTGC	3670
96	CCGGCACC G CUGAGUCG	1343	CGACTCAG GGCTAGCTACAACGA GGTGCCGG	3671
101	ACCGCUGA G UCGGGUUC	1344	GAACCCGA GGCTAGCTACAACGA TCAGCGGT	3672
106	UGAGUCGG G UUCUCUCG	1345	CGAGAGAA GGCTAGCTACAACGA CCGACTCA	3673
114	GUUCUCUC G CCGGCCUG	1346	CAGGCCGG GGCTAGCTACAACGA GAGAGAAC	3674
118	UCUCGCCG G CCUGUUCC	1347	GGAACAGG GGCTAGCTACAACGA CGGCGAGA	3675
122	GCCGGCCU G UUCCCGGG	1348	CCCGGGAA GGCTAGCTACAACGA AGGCCGGC	3676
134	CCGGGAGA G CCCGGGGC	1349	GCCCCGGG GGCTAGCTACAACGA TCTCCCGG	3677
141	AGCCCGGG G CCCUGCUC	1350	GAGCAGGG GGCTAGCTACAACGA CCCGGGCT	3678
146	GGGCCCU G CUCGGAGA	1351	TCTCCGAG GGCTAGCTACAACGA AGGGCCCC	3679
154	GCUCGGAG A UGCCGCCC	1352	GGGCGGCA GGCTAGCTACAACGA CTCCGAGC	3680
156	UCGGAGAU G CCGCCCCG	1353	CGGGGCGG GGCTAGCTACAACGA ATCTCCGA	3681
159	GAGAUGCC G CCCCGGC	1354	GCCCGGGG GGCTAGCTACAACGA GGCATCTC	3682
166	CGCCCGG G CCCCCAGA	1355	TCTGGGGG GGCTAGCTACAACGA CCGGGGCG	3683
174	GCCCCAG A CACCGGCU	1356	AGCCGGTG GGCTAGCTACAACGA CTGGGGGC	3684
176	CCCCAGAC A CCGGCUCC	1357	GGAGCCGG GGCTAGCTACAACGA GTCTGGGG	3685
180	AGACACCG G CUCCCUGG	1358	CCAGGGAG GGCTAGCTACAACGA CGGTGTCT	3686
188	GCUCCCUG G CCUUCCUC	1359	GAGGAAGG GGCTAGCTACAACGA CAGGGAGC	3687
199	UUCCUCGA G CAACCCCG	1360	CGGGGTTG GGCTAGCTACAACGA TCGAGGAA	3688
202	CUCGAGCA A CCCCGAGC	1361	GCTCGGGG GGCTAGCTACAACGA TGCTCGAG	3689
209	AACCCCGA G CUCGGCUC	1362	GAGCCGAG GGCTAGCTACAACGA TCGGGGTT	3690
214	CGAGCUCG G CUCCGGUC	1363	GACCGGAG GGCTAGCTACAACGA CGAGCTCG	3691
220	CGGCUCCG G UCUCCAGC	1364	GCTGGAGA GGCTAGCTACAACGA CGGAGCCG	3692
227	GGUCUCCA G CCAAGCCC	1365	GGGCTTGG GGCTAGCTACAACGA TGGAGACC	3693
232	CCAGCCAA G CCCAACCC	1366	GGGTTGGG GGCTAGCTACAACGA TTGGCTGG	3694
237	CAAGCCCA A CCCCGAGA	1367	TCTCGGGG GGCTAGCTACAACGA TGGGCTTG	3695
247	CCCGAGAG G CCGCGGCC	1368	GGCCGCGG GGCTAGCTACAACGA CTCTCGGG	3696
250	GAGAGGCC G CGGCCCUA	1369	TAGGGCCG GGCTAGCTACAACGA GGCCTCTC	3697
		1305		3031

			TO COLORED TO COLORED TO	
253	AGGCCGCG G CCCUACUG	1370	CAGTAGGG GGCTAGCTACAACGA CGCGGCCT	3698
258	GCGGCCCU A CUGGCUCC	1371	GGAGCCAG GGCTAGCTACAACGA AGGGCCGC	3699
262	CCCUACUG G CUCCGCCU	1372	AGGCGGAG GGCTAGCTACAACGA CAGTAGGG	3700
267	CUGGCUCC G CCUCCCGC	1373	GCGGGAGG GGCTAGCTACAACGA GGAGCCAG	3701
274	CGCCUCCC G CGUUGCUC	1374	GAGCAACG GGCTAGCTACAACGA GGGAGGCG	3702
276	CCUCCCGC G UUGCUCCC	1375	GGGAGCAA GGCTAGCTACAACGA GCGGGAGG	3703
279	CCCGCGUU G CUCCCGGA	1376	TCCGGGAG GGCTAGCTACAACGA AACGCGGG	3704
289	UCCCGGAA G CCCCGCCC	1377	GGGCGGG GGCTAGCTACAACGA TTCCGGGA	3705
294	GAAGCCCC G CCCGACCG	1378	CGGTCGGG GGCTAGCTACAACGA GGGGCTTC	3706
299	CCCGCCCG A CCGCGGCU	1379	AGCCGCGG GGCTAGCTACAACGA CGGGCGGG	3707
302	GCCCGACC G CGGCUCCU	1380	AGGAGCCG GGCTAGCTACAACGA GGTCGGGC	3708
305	CGACCGCG G CUCCUGAC	1381	GTCAGGAG GGCTAGCTACAACGA CGCGGTCG	3709
312	GGCUCCUG A CAGACGGG	1382	CCCGTCTG GGCTAGCTACAACGA CAGGAGCC	3710
316	CCUGACAG A CGGGCCGC	1383	GCGGCCCG GGCTAGCTACAACGA CTGTCAGG	3711
320	ACAGACGG G CCGCUCAG	1384	CTGAGCGG GGCTAGCTACAACGA CCGTCTGT	3712
323	GACGGGCC G CUCAGCCA	1385	TGGCTGAG GGCTAGCTACAACGA GGCCCGTC	3713
328	GCCGCUCA G CCAACCGG	1386	CCGGTTGG GGCTAGCTACAACGA TGAGCGGC	3714
332	CUCAGCCA A CCGGGGUG	1387	CACCCGG GGCTAGCTACAACGA TGGCTGAG	3715
338	CAACCGGG G UGGGGCGG	1388	CCGCCCCA GGCTAGCTACAACGA CCCGGTTG	3716
343	GGGGUGGG G CGGGGCCC	1389	GGGCCCCG GGCTAGCTACAACGA CCCACCCC	3717
348	GGGCGGG G CCCGAUGG	1390	CCATCGGG GGCTAGCTACAACGA CCCGCCCC	3718
353	GGGGCCCG A UGGCGCGC	1391	GCGCGCCA GGCTAGCTACAACGA CGGGCCCC	3719
356	GCCCGAUG G CGCGCAGC	1392	GCTGCGCG GGCTAGCTACAACGA CATCGGGC	3720
358	CCGAUGGC G CGCAGCCA	1393	TGGCTGCG GGCTAGCTACAACGA GCCATCGG	3721
360	GAUGGCGC G CAGCCAAU	1394	ATTGGCTG GGCTAGCTACAACGA GCGCCATC	3722
363	GGCGCGCA G CCAAUGGU	1395	ACCATTGG GGCTAGCTACAACGA TGCGCGCC	3723
367	CGCAGCCA A UGGUAGGC	1396	GCCTACCA GGCTAGCTACAACGA TGGCTGCG	3724
370	AGCCAAUG G UAGGCCGC	1397	GCGGCCTA GGCTAGCTACAACGA CATTGGCT	3725
374	AAUGGUAG G CCGCGCCU	1398	AGGCGCGG GGCTAGCTACAACGA CTACCATT	3726
377	GGUAGGCC G CGCCUGGC	1399	GCCAGGCG GGCTAGCTACAACGA GGCCTACC	3727
379	UAGGCCGC G CCUGGCAG	1400	CTGCCAGG GGCTAGCTACAACGA GCGGCCTA	3728
384	CGCGCCUG G CAGACGGA	1401	TCCGTCTG GGCTAGCTACAACGA CAGGCGCG	3729
388	CCUGGCAG A CGGACGGG	1402	CCCGTCCG GGCTAGCTACAACGA CTGCCAGG	3730
392	GCAGACGG A CGGGCGCG	1403	CGCGCCCG GGCTAGCTACAACGA CCGTCTGC	3731
396	ACGGACGG G CGCGGGGC	1404	GCCCGCG GGCTAGCTACAACGA CCGTCCGT	3732
398	GGACGGGC G CGGGGCGG	1405	CCGCCCG GGCTAGCTACAACGA GCCCGTCC	3733
403	GGCGCGG G CGGGCGU	1406	ACGCCCCG GGCTAGCTACAACGA CCCGCGCC	3734
408	GGGGCGGG G CGUGCGCA	1407	TGCGCACG GGCTAGCTACAACGA CCCGCCCC	3735
410	GGCGGGGC G UGCGCAGG	1408	CCTGCGCA GGCTAGCTACAACGA GCCCCGCC	3736
412	CGGGGCGU G CGCAGGCC	1409	GGCCTGCG GGCTAGCTACAACGA ACGCCCCG	3737
414	GGGCGUGC G CAGGCCCG	1410	CGGGCCTG GGCTAGCTACAACGA GCACGCCC	3738
418	GUGCGCAG G CCCGCCCG		CGGGCGGG GGCTAGCTACAACGA CTGCGCAC	3739
422	GCAGGCCC G CCCGAGUC		GACTCGGG GGCTAGCTACAACGA GGGCCTGC	3740
428	CCGCCCGA G UCUCCGCC		GGCGGAGA GGCTAGCTACAACGA TCGGGCGG	3741
434	GAGUCUCC G CCGCCCGU	1	ACGGGCGG GGCTAGCTACAACGA GGAGACTC	3742
437	UCUCCGCC G CCCGUGCC		GGCACGGG GGCTAGCTACAACGA GGCGGAGA	3743
441	CGCCGCCC G UGCCCUGC	<del> </del>	GCAGGGCA GGCTAGCTACAACGA GGGCGGCG	3744
443	CCGCCGU G CCCUGCGC	1 1 1 1	GCGCAGGG GGCTAGCTACAACGA ACGGGCGG	3745
448	CGUGCCCU G CGCCCGCA		TGCGGGCG GGCTAGCTACAACGA AGGGCACG	3746
450	UGCCUGC G CCCGCAAC	1 110	GTTGCGGG GGCTAGCTACAACGA GCAGGGCA	3747
454	CUGCGCCC G CAACCCGA	1 111	TCGGGTTG GGCTAGCTACAACGA GGGCGCAG	3748
457	CGCCCGCA A CCCGAGCC	<del>- </del>	GGCTCGGG GGCTAGCTACAACGA TGCGGGCG	3749
1 43/		1421	1	

463	CAACCCGA G CCGCACCC	1422	GGGTGCGG GGCTAGCTACAACGA TCGGGTTG	3750
466	CCCGAGCC G CACCCGCC	1423	GGCGGGTG GGCTAGCTACAACGA GGCTCGGG	3751
468	CGAGCCGC A CCCGCCGC	1424	GCGGCGGG GGCTAGCTACAACGA GCGGCTCG	3752
472	CCGCACCC G CCGCGGAC	1425	GTCCGCGG GGCTAGCTACAACGA GGGTGCGG	3753
475	CACCCGCC G CGGACGGA	1426	TCCGTCCG GGCTAGCTACAACGA GGCGGGTG	3754
479	CGCCGCGG A CGGAGCCC	1427	GGGCTCCG GGCTAGCTACAACGA CCGCGGCG	3755
484	CGGACGGA G CCCAUGCG	1428	CGCATGGG GGCTAGCTACAACGA TCCGTCCG	3756
488	CGGAGCCC A UGCGCGGG	1429	CCCGCGCA GGCTAGCTACAACGA GGGCTCCG	3757
490	GAGCCCAU G CGCGGGC	1430	GCCCCGCG GGCTAGCTACAACGA ATGGGCTC	3758
492	GCCCAUGC G CGGGGCGA	1431	TCGCCCCG GGCTAGCTACAACGA GCATGGGC	3759
497	UGCGCGGG G CGAACCGC	1432	GCGGTTCG GGCTAGCTACAACGA CCCGCGCA	3760
501	CGGGGCGA A CCGCGCGC	1433	GCGCGCGG GGCTAGCTACAACGA TCGCCCCG	3761
504	GGCGAACC G CGCGCCCC	1434	GGGCCCC GGCTACCTACAACGA GGTTCGCC	3762
506	CGAACCGC G CGCCCCG	1435	CGGGGCG GGCTAGCTACAACGA GCGGTTCG	
508	AACCGCGC G CCCCCGCC	1436	GGCGGGG GGCTAGCTACAACGA GCGCGGTT	3763
514	GCGCCCCC G CCCCCGCC	1437	GGCGGGG GGCTAGCTACAACGA GGGGGCGC	3764
520	CCGCCCCC G CCCCGCCC	1438	GGGCGGG GGCTAGCTACAACGA GGGGGCGG	3765
525	CCCGCCCC G CCCCGCC	1439	GGCCGGG GGCTAGCTACAACGA GGGGCGGG	3766
531	CCGCCCG G CCUCGGCC	<del></del>	GGCCGAGG GGCTAGCTACAACGA CGGGGCGG	3767
537	CGGCCUCG G CCCCGGCC	1440	GGCCGGG GGCTAGCTACAACGA CGAGGCCG	3768
543	CGCCCCG G CCCUGGCC	1441	GGCCAGGG GGCTAGCTACAACGA CGGGGCCG	3769
549	CGGCCCUG G CCCCGGGG	1442	CCCCGGGG GGCTAGCTACAACGA CAGGGCCG	3770
558	CCCGGGG G CAGUCGCG	1443	CGCGACTG GGCTAGCTACAACGA CCCCGGGG	3771
561	CGGGGCA G UCGCGCCU	1444	AGGCGCGA GGCTAGCTACAACGA TGCCCCCG	3772
564	GGCAGUC G CGCCUGUG	1445	CACAGGCG GGCTAGCTACAACGA GACTGCCC	3773
566	GCAGUCGC G CCUGUGAA	1446	TTCACAGG GGCTAGCTACAACGA GCGACTGC	3774
570	UCGCGCCU G UGAACGGU	1447	ACCGTTCA GGCTAGCTACAACGA AGGCGCGA	3775
574	GCCUGUGA A CGGUGAGU	1448	ACTCACCG GGCTAGCTACAACGA TCACAGGC	3776
577	UGUGAACG G UGAGUGCG	1449	CGCACTCA GGCTAGCTACAACGA CGTTCACA	3777
581	AACGGUGA G UGCGGGCA	1450	TGCCCGCA GGCTAGCTACAACGA TCACCGTT	3778
583	CGGUGAGU G CGGCAGG	1451	CCTGCCG GGCTAGCTACAACGA ACTCACCG	3779
587	GAGUGCGG G CAGGGAUC	1452	GATCCCTG GGCTAGCTACAACGA CCGCACTC	3780
593	GGGCAGGG A UCGGCCGG	1453	CCGGCCGA GGCTAGCTACAACGA CCCTGCCC	3781
597	AGGGAUCG G CCGGGCCG	1454	CGGCCGG GGCTAGCTACAACGA CGATCCCT	3782
602	UCGGCCGG G CCGCGCGC	1455	GCGCGCGG GGCTAGCTACAACGA CCGGCCGA	3783
605	GCCGGGCC G CGCGCCCU	1456	AGGGCGCG GGCTAGCTACAACGA CCGGCCGA	3784
607	CGGGCCGC G CGCCCUCC	1457	GGAGGGCG GGCTAGCTACAACGA GGGCCCGGC	3785
609	GGCCGCGC G CCCUCCUC	1458		3786
618	CCCUCCUC G CCCCCAGG	1459	GAGGAGGG GGCTAGCTAGAACGA GCGCGGCC	3787
626	GCCCCAG G CGGCAGCA	1460	CCTGGGGG GGCTAGCTACAACGA GAGGAGGG TGCTGCCG GGCTAGCTACAACGA CTGGGGGC	3788
629	CCCAGGCG G CAGCAAUA	1461	TATTGCTG GGCTAGCTACAACGA CGCCTGGG	3789
632	AGGCGGCA G CAAUACGC	1462		3790
635	CGGCAGCA A UACGCGCG	1463	GCGCCCTA GCCTAGCTAGAACGA TGCCGCCT	3791
637	GCAGCAAU A CGCGCGCC	1464	CGCCCCC CCCTAGCTAGAACGA TGCTGCCG	3792
639	AGCAAUAC G CGCGCGC	1465	GCCCCCCC GCCTACCTACAACGA ATTGCTGC	3793
641	CAAUACGC G CGCGCGC	1466	GCGCCGCG GGCTAGCTACAACGA GTATTGCT	3794
644	UACGCGCG G CGCGGGCC	1467	CCGCCCC GCCTAGCTACAACGA GCGTATTG	3795
646	CGCGCGCC G CGCGGCCC	1468	GGCCCGCG GGCTAGCTACAACGA CGCGCGTA	3796
650	CGCGCGGC G CCGGGGGC	1469	CCGGCCG GGCTAGCTACAACGA GCCGCGCG	3797
657	GGCCGGGG G CGCGGGGC	1470	GCCCCCGG GGCTAGCTACAACGA CCGCGCCG	3798
659	CCGGGGGC G CGGGGCCG	1471	GCCCCGCG GGCTAGCTACAACGA CCCCGGCC	3799
664	GGCGCGGG G CCGGCGGG	1472	CGGCCCGG GGCTAGCTACAACGA GCCCCCGG	3800
	COCCEGG & CCGGCGGG	1473	CCCGCCGG GGCTAGCTACAACGA CCCGCGCC	3801

			TACGCCCG GGCTAGCTACAACGA CGGCCCCG	3802
668	CGGGGCCG G CGGGCGUA	1474	CGCTTACG GGCTAGCTACAACGA CCGCCGGC	3803
672	GCCGGCGG G CGUAAGCG	1475	GCCGCTTA GGCTAGCTACAACGA GCCCGCCG	3804
674	CGGCGGGC G UAAGCGGC	1476	CGCCGCCG GGCTAGCTACAACGA TTACGCCC	3805
678	GGGCGUAA G CGGCGGCG	1477	CGCCGCCG GGCTAGCTACAACGA CGCTTACG	3806
681	CGUAAGCG G CGGCGGCG	1478	CGCCGCCG GGCTAGCTACAACGA CGCCGCTT	3807
684	AAGCGGCG G CGGCGGCG	1479	CGCCGCCG GGCTAGCTACAACGA CGCCGCCG	3808
687	CGGCGGCG G CGGCGGCG	1480	ACCCGCCG GGCTAGCTACAACGA CGCCGCCG	3809
690	CGGCGGCG G CGGCGGGU	1481	CCCACCG GGCTAGCTACAACGA CGCCGCCG	3810
693	CGGCGGCG G CGGGUGGG	1482	CCCACCCA GGCTAGCTACAACGA CCGCCGCC	3811
697	GGCGGCGG G UGGGUGGG	1483	CGGCCCA GGCTAGCTACAACGA CCACCCGC	3812
701	GCGGGUGG G UGGGGCCG	1484	CCGCCCGG GGCTAGCTACAACGA CCCACCCA	3813
706	UGGGUGGG G CCGGGCGG	1485	GGGCCCG GGCTAGCTACAACGA CCGGCCCC	3814
711	GGGGCCGG G CGGGGCCC	1486	CCCGCGGG GGCTAGCTACAACGA CCCGCCCG	3815
716	CGGGCGGG G CCCGCGGG	1487	TGTGCCCG GGCTAGCTACAACGA GGGCCCCG	3816
720	CGGGGCCC G CGGGCACA	1488	CACCTGTG GGCTAGCTACAACGA CCGCGGGC	3817
724	GCCCGCGG G CACAGGUG	1489	CTCACCTG GGCTAGCTACAACGA GCCCGCGG	
726	CCGCGGC A CAGGUGAG	1490	CCCGCTCA GGCTAGCTACAACGA CTGTGCCC	3818
730	GGGCACAG G UGAGCGGG	1491	GACGCCCG GGCTAGCTACAACGA TCACCTGT	
734	ACAGGUGA G CGGGCGUC	1492	CCCCGACG GGCTAGCTACAACGA CCGCTCAC	3820
738	GUGAGCGG G CGUCGGGG	1493	GCCCCGA GGCTAGCTACAACGA CCGCTCAC	3821
740	GAGCGGGC G UCGGGGGC	1494	CGCCGCAG GGCTAGCTACAACGA CCCCGACG	3822
747	CGUCGGGG G CUGCGGCG	1495	GCCGCCG GGCTAGCTACAACGA CCCCGACG GCCCGCCG GGCTAGCTACAACGA AGCCCCCG	3823
750	CGGGGCU G CGGCGGCC	1496	CCCGCCCG GGCTAGCTACAACGA AGCCCCG CCCGCCCG GGCTAGCTACAACGA CGCAGCCC	3824
753	GGGCUGCG G CGGGCGGG	1497	GCCCCCG GGCTAGCTACAACGA CGCCGCA	3825
757	UGCGGCGG G CGGGGGCC	1498	GGCCCCCG GGCTAGCTACAACGA CCCCGCCC GGAAGGGG GGCTAGCTACAACGA CCCCGCCC	3826
763	GGGCGGG G CCCCUUCC	1499	CCCGCAGG GGCTAGCTACAACGA CCCAGGGA	3827
780	UCCCUGGG G CCUGCGGG	1500	GATTCCCG GGCTAGCTACAACGA AGGCCCCA	3828
784	UGGGCCU G CGGGAAUC	1501	GGCCCGGA GGCTAGCTACAACGA TCCCGCAG	3829 3830
790	CUGCGGGA A UCCGGGCC	1502	GGCCCGGA GGCTAGCTACAACGA TCCCCGTAC	3831
796	GAAUCCGG G CCCCACCC	1503	GCCACGGG GGCTAGCTACAACGA GGGGCCCG	3832
801	CGGGCCCC A CCCGUGGC	1504	CGAGGCCA GGCTAGCTACAACGA GGGTGGGG	3833
805	CCCCACCC G UGGCCUCG	1505	GCGCGAGG GGCTAGCTACAACGA CACGGGTG	3834
808	CACCCGUG G CCUCGCGC	1506	GCCCAGCG GGCTAGCTACAACGA CACCCAC	3835
813	GUGGCCUC G CGCUGGGC	1507	GTGCCCAG GGCTAGCTACAACGA GCGAGGCC	3836
815	GGCCUCGC G CUGGGCAC	1508	GGACCGTG GGCTAGCTACAACGA CCAGCGCG	3837
820	CGCGCUGG G CACGGUCC	1509	GGGCACCG GGCTAGCTACAACGA GCCCAGCG	<del> </del>
822	CGCUGGGC A CGGUCCCC		CGTGGGA GGCTAGCTACAACGA CGTGCCCA	3838
825			CGTGGGGA GGCTAGCTACAACGA CGTGCCGA	3839 3840
831			TRACCOCCC CCCTACCTACAACGA CTGGGGAC	
833	· · · · · · · · · · · · · · · · · · ·		TACGCCGG GGCTAGCTACAACGA GIGGGGAC  CGGGTACG GGCTAGCTACAACGA CGGCGTGG	3841
837			CCCGGGTA GGCTAGCTACAACGA CCGGCGT  CCCGGGTA GGCTAGCTACAACGA GCCGGCGT	3842
839	· · · · · · · · · · · · · · · · · · ·		CCCGGGTA GGCTAGCTACAACGA GCCGGCGC  CTCCCGGG GGCTAGCTACAACGA ACGCCGGC	3843
841			GCCCGAGG GGCTAGCTACAACGA TCCCGGGT	3844
849			GCCCGAGG GGCTAGCTACAACGA TCCCGGGT GCGCCGGG GGCTAGCTACAACGA CCGAGGCT	3845
856			GCGCCGGG GGCTAGCTACAACGA CCGAGGCT TGAGGGCG GGCTAGCTACAACGA CGGGCCCG	3846
861			TGAGGGCG GGCTAGCTACAACGA CGGGCCCG TGTGAGGG GGCTAGCTACAACGA GCCGGGCC	3847
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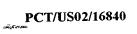
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1877	ACCAGUAC A UGCGCACC	1747	GGTGCGCA GGCTAGCTACAACGA GTACTGGT	4074
1879	CAGUACAU G CGCACCGG	1748	CCGGTGCG GGCTAGCTACAACGA ATGTACTG	4075
1881	GUACAUGC G CACCGGGG	1748	CCCCGGTG GGCTAGCTACAACGA GCATGTAC	4076
1883	ACAUGCGC A CCGGGGAG	1750	CTCCCGG GGCTAGCTACAACGA GCGCATGT	4077
1893	CGGGAGG G CUUCCUGU	1751	ACAGGAAG GGCTAGCTACAACGA CCTCCCCG	4078
1900	GGCUUCCU G UGUGUGUU	1752	AACACACA GGCTAGCTACAACGA AGGAAGCC	4079
1902	CUUCCUGU G UGUGUUUG		CAAACACA GGCTAGCTACAACGA ACAGGAAG	4080
1904	UCCUGUGU G UGUUUGCC	1753	GGCAAACA GGCTAGCTACAACGA ACACAGGA	4081
1906	CUGUGUGU G UUUGCCAU	1754	ATGGCAAA GGCTAGCTACAACGA ACACACAG	4082
1910	GUGUGUUU G CCAUCAAC	1755	GTTGATGG GGCTAGCTACAACGA AAACACAC	4083
1913	UGUUUGCC A UCAACAAC	1756	GTTGTTGA GGCTAGCTACAACGA GGCAAACA	4084
1917	UGCCAUCA A CAACACCA	1757	TGGTGTTG GGCTACCTACAACGA TGATGGCA	4085
1920	CAUCAACA A CACCAAGU	1758	ACTTGGTG GGCTAGCTACAACGA TGTTGATG	4086
1922	UCAACAAC A CCAAGUCU	1759 1760	AGACTTGG GGCTAGCTACAACGA GTTGTTGA	4087
1927	AACACCAA G UCUUUUGA	1761	TCAAAAGA GGCTAGCTACAACGA TTGGTGTT	4088
1938	UUUUGAGG A CAUCCACC	1762	GGTGGATG GGCTAGCTACAACGA CCTCAAAA	4089
1940	UUGAGGAC A UCCACCAG	1763	CTGGTGGA GGCTAGCTACAACGA GTCCTCAA	4090 4091
1944	GGACAUCC A CCAGUACA	1764	TGTACTGG GGCTAGCTACAACGA GGATGTCC	4092
1948	AUCCACCA G UACAGGGA	1765	TCCCTGTA GGCTAGCTACAACGA TGGTGGAT	4093
1950	CCACCAGU A CAGGGAGC	1766	GCTCCCTG GGCTAGCTACAACGA ACTGGTGG	4094
1957	UACAGGGA G CAGAUCAA	1767	TTGATCTG GGCTAGCTACAACGA TCCCTGTA	4095
1961	GGGAGCAG A UCAAACGG	1768	CCGTTTGA GGCTAGCTACAACGA CTGCTCCC	4096
1966	CAGAUCAA A CGGGUGAA	1769	TTCACCCG GGCTAGCTACAACGA TTGATCTG	4097
1970	UCAAACGG G UGAAGGAC	1770	GTCCTTCA GGCTAGCTACAACGA CCGTTTGA	4098
1977	GGUGAAGG A CUCGGAUG	1771	CATCCGAG GGCTAGCTACAACGA CCTTCACC	4099
1983	GGACUCGG A UGACGUGC	1772	GCACGTCA GGCTAGCTACAACGA CCGAGTCC	4100
1986	CUCGGAUG A CGUGCCCA	1773	TGGGCACG GGCTAGCTACAACGA CATCCGAG	4101
1988	CGGAUGAC G UGCCCAUG	1774	CATGGGCA GGCTAGCTACAACGA GTCATCCG	4102
1990	GAUGACGU G CCCAUGGU	1775	ACCATGGG GGCTAGCTACAACGA ACGTCATC	4103
1994	ACGUGCCC A UGGUGCUG	1776	CAGCACCA GGCTAGCTACAACGA GGGCACGT	4104
1997	UGCCCAUG G UGCUGGUG	1777	CACCAGCA GGCTAGCTACAACGA CATGGGCA	4105
1999	CCCAUGGU G CUGGUGGG	1778	CCCACCAG GGCTAGCTACAACGA ACCATGGG	4106
2003	UGGUGCUG G UGGGGAAC	1779	GTTCCCCA GGCTAGCTACAACGA CAGCACCA	4107
2010	GGUGGGGA A CAAGUGUG	1780	CACACTTG GGCTAGCTACAACGA TCCCCACC	4108
2014	GGGAACAA G UGUGACCU	1781	AGGTCACA GGCTAGCTACAACGA TTGTTCCC	4109
2016	GAACAAGU G UGACCUGG	1782	CCAGGTCA GGCTAGCTACAACGA ACTTGTTC	4110
2019	CAAGUGUG A CCUGGCUG	1783	CAGCCAGG GGCTAGCTACAACGA CACACTTG	4111
2024	GUGACCUG G CUGCACGC	1784	GCGTGCAG GGCTAGCTACAACGA CAGGTCAC	4112
2027	ACCUGGCU G CACGCACU	1785	AGTGCGTG GGCTAGCTACAACGA AGCCAGGT	4113
		<u> </u>		



2029	CUGGCUGC A CGCACUGU	1786	ACAGTGCG GGCTAGCTACAACGA GCAGCCAG	4114
2031	GGCUGCAC G CACUGUGG	1787	CCACAGTG GGCTAGCTACAACGA GTGCAGCC	4115
2033	CUGCACGC A CUGUGGAA	1788	TTCCACAG GGCTAGCTACAACGA GCGTGCAG	4116
2036	CACGCACU G UGGAAUCU	1789	AGATTCCA GGCTAGCTACAACGA AGTGCGTG	4117
2041	ACUGUGGA A UCUCGGCA	1790	TGCCGAGA GGCTAGCTACAACGA TCCACAGT	4118
2047	GAAUCUCG G CAGGCUCA	1791	TGAGCCTG GGCTAGCTACAACGA CGAGATTC	4119
2051	CUCGGCAG G CUCAGGAC	1792	GTCCTGAG GGCTAGCTACAACGA CTGCCGAG	4120
2058	GGCUCAGG A CCUCGCCC	1793	GGGCGAGG GGCTAGCTACAACGA CCTGAGCC	4121
2063	AGGACCUC G CCCGAAGC	1794	GCTTCGGG GGCTAGCTACAACGA GAGGTCCT	4122
2070	CGCCCGAA G CUACGGCA	1795	TGCCGTAG GGCTAGCTACAACGA TTCGGGCG	4123
2073	CCGAAGCU A CGGCAUCC		GGATGCCG GGCTAGCTACAACGA AGCTTCGG	4124
2076	AAGCUACG G CAUCCCCU	1796	AGGGGATG GGCTAGCTACAACGA CGTAGCTT	4125
2078	GCUACGGC A UCCCCUAC	1797	GTAGGGGA GGCTAGCTACAACGA GCCGTAGC	4126
	CAUCCCCU A CAUCGAGA	1798	TCTCGATG GGCTAGCTACAACGA AGGGGATG	4127
2085	UCCCCUAC A UCGAGACC	1799	GGTCTCGA GGCTAGCTACAACGA GTAGGGGA	4128
2087	ACAUCGAG A CCUCGGCC	1800	GGCCGAGG GGCTAGCTACAACGA CTCGATGT	4129
2093	AGACCUCG G CCAAGACC	1801	GGTCTTGG GGCTAGCTACAACGA CGAGGTCT	4130
2099	CGGCCAAG A CCCGGCAG	1802	CTGCCGGG GGCTAGCTACAACGA CTTGGCCG	4131
2105	AAGACCCG G CAGGGAGU	1803	ACTCCCTG GGCTAGCTACAACGA CGGGTCTT	4132
2110	GGCAGGGA G UGGAGGAU	1804	ATCCTCCA GGCTAGCTACAACGA TCCCTGCC	4133
2117	AGUGGAGG A UGCCUUCU	1805	AGAAGGCA GGCTAGCTACAACGA CCTCCACT	4134
2124	UGGAGGAU G CCUUCUAC	1806	GTAGAAGG GGCTAGCTACAACGA ATCCTCCA	4135
2126	UGCCUUCU A CACGUUGG	1807	CCAACGTG GGCTAGCTACAACGA AGAAGGCA	4136
2133	CCUUCUAC A CGUUGGUG	1808	CACCAACG GGCTAGCTACAACGA GTAGAAGG	4137
2135		1809	CGCACCAA GGCTAGCTACAACGA GTGTAGAA	4138
2137	UUCUACAC G UUGGUGCG	1810	CTCACGCA GGCTAGCTACAACGA CAACGTGT	4139
2141	ACACGUUG G UGCGUGAG	1811	ATCTCACG GGCTAGCTACAACGA ACCAACGT	4140
2143	ACGUUGGU G CGUGAGAU GUUGGUGC G UGAGAUCC	1812	GGATCTCA GGCTAGCTACAACGA GCACCAAC	4141
2145	UGCGUGAG A UCCGGCAG	1813	CTGCCGGA GGCTAGCTACAACGA CTCACGCA	4142
2150	GAGAUCCG G CAGCACAA	1814	TTGTGCTG GGCTAGCTACAACGA CGGATCTC	4143
2155	AUCCGGCA G CACAAGCU	1815	AGCTTGTG GGCTAGCTACAACGA TGCCGGAT	4144
2158	CCGGCAGC A CAAGCUGC	1816	GCAGCTTG GGCTAGCTACAACGA GCTGCCGG	4145
2160	CAGCACAA G CUGCGGAA	1817	TTCCGCAG GGCTAGCTACAACGA TTGTGCTG	4146
2164	CACAAGCU G CGGAAGCU	1818	AGCTTCCG GGCTAGCTACAACGA AGCTTGTG	4147
2167		1819	GGGTTCAG GGCTAGCTACAACGA TTCCGCAG	4148
2173	CUGCGGAA G CUGAACCC	1820	CAGGAGGG GGCTAGCTACAACGA TCAGCTTC	4149
2178	GAAGCUGA A CCCUCCUG	1821	CACTCTCA GGCTAGCTACAACGA CAGGAGGG	4150
2187		1822	CGGGGCCA GGCTAGCTACAACGA TCTCATCA	4151
2193		1823	AGCCGGGG GGCTAGCTACAACGA CACTCTCA	4152
2196		1824	TCATGCAG GGCTAGCTACAACGA CGGGGCCA	4153
2202		1825	AGCTCATG GGCTAGCTACAACGA AGCCGGGG	4154
2205		1826	GCAGCTCA GGCTAGCTACAACGA GCAGCCGG	4154
2207		1827	ACTIGCAG GGCTAGCTACAACGA TCATGCAG	4156
2211		<del> </del>	CACACTTG GGCTAGCTACAACGA AGCTCATG	4157
2214		+	AGCACACA GGCTAGCTACAACGA TTGCAGCT	<del></del>
2218			AGAGCACA GGCTAGCTACAACGA TTGCAGCTAGAGCACA GGCTAGCTACAACGA ACTTGCAG	4158
2220			GGAGAGCA GGCTAGCTACAACGA ACACTTGC	4159
2222			GGAGAGCA GGCTAGCTACAACGA ACACTT  CAGGAGAG GGCTAGCTACAACGA ACACTT	4160
2224		+	CACCTGCG GGCTAGCTACAACGA CACGAGAG	4161
2233			CACCTGCG GGCTAGCTACAACGA CAGGAGAG  CTCACCTG GGCTAGCTACAACGA GTCAGGAG	4162
2235			CCCCCTCA GGCTAGCTACAACGA CTGCGTCA	4163
2239			CCCCCTCA GGCTAGCTACAACGA CCCCCTCA  CCTGGGAG GGCTAGCTACAACGA CCCCCTCA	4164
2248	UGAGGGGG A CUCCCAGG	1837	CCIGGGAG GGCIAGCIACAACGA CCCCCICA	4165

2257	CUCCCAGG G CGGCCGCC	1838	GGCGGCCG GGCTAGCTACAACGA CCTGGGAG	4166
2260	CCAGGGCG G CCGCCACG	1839	CGTGGCGG GGCTAGCTACAACGA CGCCCTGG	4167
2263	GGGCGGCC G CCACGCCC	1840	GGGCGTGG GGCTAGCTACAACGA GGCCGCCC	4168
2266	CGGCCGCC A CGCCCACC	1841	GGTGGGCG GGCTAGCTACAACGA GGCGGCCG	4169
2268	GCCGCCAC G CCCACCGG	1842	CCGGTGGG GGCTAGCTACAACGA GTGGCGGC	4170
- 2272	CCACGCCC A CCGGAUGA	1843	TCATCCGG GGCTAGCTACAACGA GGGCGTGG	4171
2277	CCCACCGG A UGACCCCG	1844	CGGGGTCA GGCTAGCTACAACGA CCGGTGGG	4172
2280	ACCGGAUG A CCCCGGCU	1845	AGCCGGGG GGCTAGCTACAACGA CATCCGGT	4173
2286	UGACCCCG G CUCCCCGC	1846	GCGGGGAG GGCTAGCTACAACGA CGGGGTCA	4174
2293	GGCUCCCC G CCCCUGCC	1847	GGCAGGGG GGCTAGCTACAACGA GGGGAGCC	4175
2299	CCGCCCCU G CCGGUCUC	1848	GAGACCGG GGCTAGCTACAACGA AGGGGCGG	4176
2303	CCCUGCCG G UCUCCUGG	1849	CCAGGAGA GGCTAGCTACAACGA CGGCAGGG	4177
2311	GUCUCCUG G CCUGCGGU	1850	ACCGCAGG GGCTAGCTACAACGA CAGGAGAC	4178
-2315	CCUGGCCU G CGGUCAGC	1851	GCTGACCG GGCTAGCTACAACGA AGGCCAGG	4179
2318	GGCCUGCG G UCAGCAGC	1852	GCTGCTGA GGCTAGCTACAACGA CGCAGGCC	4180
2322	UGCGGUCA G CAGCCUCC	1853	GGAGGCTG GGCTAGCTACAACGA TGACCGCA	4181
2325	GGUCAGCA G CCUCCCUU	1854	AAGGGAGG GGCTAGCTACAACGA TGCTGACC	4182
2334	CCUCCCUU G UGCCCCGC	1855	GCGGGGCA GGCTAGCTACAACGA AAGGGAGG	4183
2336	UCCCUUGU G CCCCGCCC	1856	GGGCGGG GGCTAGCTACAACGA ACAAGGGA	4184
2341	UGUGCCCC G CCCAGCAC	1857	GTGCTGGG GGCTAGCTACAACGA GGGGCACA	4185
2346	CCCGCCCA G CACAAGCU	1858	AGCTTGTG GGCTAGCTACAACGA TGGGCGGG	4186
2348	CGCCCAGC A CAAGCUCA	1859	TGAGCTTG GGCTAGCTACAACGA GCTGGGCG	4187
2352	CAGCACAA G CUCAGGAC	1860	GTCCTGAG GGCTAGCTACAACGA TTGTGCTG	4188
2359	AGCUCAGG A CAUGGAGG	1861	CCTCCATG GGCTAGCTACAACGA CCTGAGCT	4189
2361	CUCAGGAC A UGGAGGUG	1862	CACCTCCA GGCTAGCTACAACGA GTCCTGAG	4190
2367	ACAUGGAG G UGCCGGAU	1863	ATCCGGCA GGCTAGCTACAACGA CTCCATGT	4191
2369	AUGGAGGU G CCGGAUGC	1864	GCATCCGG GGCTAGCTACAACGA ACCTCCAT	4192
2374	GGUGCCGG A UGCAGGAA	1865	TTCCTGCA GGCTAGCTACAACGA CCGGCACC	4193
2376	UGCCGGAU G CAGGAAGG	1866	CCTTCCTG GGCTAGCTACAACGA ATCCGGCA	4194
2387	GGAAGGAG G UGCAGACG	1867	CGTCTGCA GGCTAGCTACAACGA CTCCTTCC	4195
2389	AAGGAGGU G CAGACGGA	1868	TCCGTCTG GGCTAGCTACAACGA ACCTCCTT	4196
2393	AGGUGCAG A CGGAAGGA	1869	TCCTTCCG GGCTAGCTACAACGA CTGCACCT	4197
2415	AAGGAAGG A CGGAAGCA	1870	TGCTTCCG GGCTAGCTACAACGA CCTTCCTT	4198
2421	GGACGGAA G CAAGGAAG	1871	CTTCCTTG GGCTAGCTACAACGA TTCCGTCC	4199
2439	AAGGAAGG G CUGCUGGA	1872	TCCAGCAG GGCTAGCTACAACGA CCTTCCTT	
2442	GAAGGGCU G CUGGAGCC	1873	GGCTCCAG GGCTAGCTACAACGA AGCCCTTC	4200
2448	CUGCUGGA G CCCAGUCA	1874	TGACTGGG GGCTAGCTACAACGA TCCAGCAG	4201
2453	GGAGCCCA G UCACCCCG	1875	CGGGGTGA GGCTACCTACAACGA TGGGCTCC	4202
2456	GCCCAGUC A CCCCGGGA	1876	TCCCGGGG GGCTAGCTACAACGA GACTGGGC	4203
2464	ACCCCGGG A CCGUGGGC	1876	GCCCACGG GGCTAGCTACAACGA CCCGGGGT	4204
2467	CCGGGACC G UGGGCCGA	1877	TCGGCCCA GGCTAGCTACAACGA GGTCCCGG	4205
2471	GACCGUGG G CCGAGGUG		CACCTCGG GGCTAGCTACAACGA CCACGGTC	4206
2477	GGGCCGAG G UGACUGCA	1879	TGCAGTCA GGCTAGCTACAACGA CTCGGCCC	4207
2480	CCGAGGUG A CUGCAGAC	1880	GTCTGCAG GGCTAGCTACAACGA CACCTCGG	4208
2483	AGGUGACU G CAGACCCU	1881	AGGGTCTG GGCTAGCTACAACGA AGTCACCT	4209
2487	GACUGCAG A CCCUCCCA	1882 1883	TGGGAGGG GGCTAGCTACAACGA CTGCAGTC	4210
2501	CCAGGGAG G CUGUGCAC		GTGCACAG GGCTAGCTACAACGA CTCCCTGG	4211
2504	GGGAGGCU G UGCACAGA	1884	TCTGTGCA GGCTAGCTACAACGA AGCCTCCC	4212
2506	GAGGCUGU G CACAGACU	1885	AGTCTGTG GGCTAGCTACAACGA ACAGCCTC	4213
2508	GGCUGUGC A CAGACUGU	1886	ACAGTCTG GGCTAGCTACAACGA ACAGCCTC  ACAGTCTG GGCTAGCTACAACGA GCACAGCC	4214
2512	GUGCACAG A CUGUCUUG	1887	CAAGACAG GGCTAGCTACAACGA GCACAGCC CAAGACAG GGCTAGCTACAACGA CTGTGCAC	4215
2515	CACAGACU G UCUUGAAC	1888	GTTCAAGA GGCTAGCTACAACGA AGTCTGTG	4216
	- COOGAAC	1889	OCTUBETACIACOA AGICIGIG	4217

2522	UGUCUUGA A CAUCCCAA	1890	TTGGGATG GGCTAGCTACAACGA TCAAGACA	4218
2524	UCUUGAAC A UCCCAAAU	1891	ATTTGGGA GGCTAGCTACAACGA GTTCAAGA	4219
2531	CAUCCCAA A UGCCACCG	1892	CGGTGGCA GGCTAGCTACAACGA TTGGGATG	4220
2533	UCCCAAAU G CCACCGGA	1893	TCCGGTGG GGCTAGCTACAACGA ATTTGGGA	4221
2536	CAAAUGCC A CCGGAACC	1894	GGTTCCGG GGCTAGCTACAACGA GGCATTTG	4222
2542	CCACCGGA A CCCCAGCC	1895	GGCTGGGG GGCTAGCTACAACGA TCCGGTGG	4223
2548	GAACCCCA G CCCUUAGC	1896	GCTAAGGG GGCTAGCTACAACGA TGGGGTTC	4224
2555	AGCCCUUA G CUCCCCUC	1897	GAGGGGAG GGCTAGCTACAACGA TAAGGGCT	4225
2568	CCUCCCAG G CCUCUGUG	1898	CACAGAGG GGCTAGCTACAACGA CTGGGAGG	4226
2574	AGGCCUCU G UGGGCCCU	1899	AGGGCCCA GGCTAGCTACAACGA AGAGGCCT	4227
2578	CUCUGUGG G CCCUUGUC	1900	GACAAGGG GGCTAGCTACAACGA CCACAGAG	4228
2584	GGGCCCUU G UCGGGCAC	1901	GTGCCCGA GGCTAGCTACAACGA AAGGGCCC	4229
2589	CUUGUCGG G CACAGAUG	1902	CATCTGTG GGCTAGCTACAACGA CCGACAAG	4230
2591	UGUCGGGC A CAGAUGGG	1903	CCCATCTG GGCTAGCTACAACGA GCCCGACA	4231
2595	GGGCACAG A UGGGAUCA	1904	TGATCCCA GGCTAGCTACAACGA CTGTGCCC	4232
2600	CAGAUGGG A UCACAGUA	1905	TACTGTGA GGCTAGCTACAACGA CCCATCTG	4233
2603	AUGGGAUC A CAGUAAAU	1906	ATTTACTG GGCTAGCTACAACGA GATCCCAT	4234
2606	GGAUCACA G UAAAUUAU	1907	ATAATTTA GGCTAGCTACAACGA TGTGATCC	4235
2610	CACAGUAA A UUAUUGGA	1908	TCCAATAA GGCTAGCTACAACGA TTACTGTG	4236
2613	AGUAAAUU A UUGGAUGG	1909	CCATCCAA GGCTAGCTACAACGA AATTTACT	4237
2618	AUUAUUGG A UGGUCUUG	1910	CAAGACCA GGCTAGCTACAACGA CCAATAAT	4238
2621	AUUGGAUG G UCUUGAUC	1911	GATCAAGA GGCTAGCTACAACGA CATCCAAT	4239
2627	UGGUCUUG A UCUUGGUU	1912	AACCAAGA GGCTAGCTACAACGA CAAGACCA	4240
2633	UGAUCUUG G UUUUCGGC	1913	GCCGAAAA GGCTAGCTACAACGA CAAGATCA	4241
2640	GGUUUUCG G CUGAGGGU	1914	ACCCTCAG GGCTAGCTACAACGA CGAAAACC	4242
2647	GGCUGAGG G UGGGACAC	1915	GTGTCCCA GGCTAGCTACAACGA CCTCAGCC	4243
2652	AGGGUGGG A CACGGUGC	1916	GCACCGTG GGCTAGCTACAACGA CCCACCCT	4244
2654	GGUGGGAC A CGGUGCGC	1917	GCGCACCG GGCTAGCTACAACGA GTCCCACC	4245
2657	GGGACACG G UGCGCGUG	1918	CACGCGCA GGCTAGCTACAACGA CGTGTCCC	4246
2659	GACACGGU G CGCGUGUG	1919	CACACGCG GGCTAGCTACAACGA ACCGTGTC	4247
2661	CACGGUGC G CGUGUGGC	1920	GCCACACG GGCTAGCTACAACGA GCACCGTG	4248
2663	CGGUGCGC G UGUGGCCU	1921	AGGCCACA GGCTAGCTACAACGA GCGCACCG	4249
2665	GUGCGCGU G UGGCCUGG	1922	CCAGGCCA GGCTAGCTACAACGA ACGCGCAC	4250
2668	CGCGUGUG G CCUGGCAU	1923	ATGCCAGG GGCTAGCTACAACGA CACACGCG	4251
2673	GUGGCCUG G CAUGAGGU	1924	ACCTCATG GGCTAGCTACAACGA CAGGCCAC	4252
2675	GGCCUGGC A UGAGGUAU	1925	ATACCTCA GGCTAGCTACAACGA GCCAGGCC	4253
2680	GGCAUGAG G UAUGUCGG	1926	CCGACATA GGCTAGCTACAACGA CTCATGCC	4254
2682	CAUGAGGU A UGUCGGAA	1927	TTCCGACA GGCTAGCTACAACGA ACCTCATG	4255
2684	UGAGGUAU G UCGGAACC	1928	GGTTCCGA GGCTAGCTACAACGA ATACCTCA	4256
2690			GCCTGAGG GGCTAGCTACAACGA TCCGACAT	4257
2697			TGGACAGG GGCTAGCTACAACGA CTGAGGTT	4258
2701			GGGCTGGA GGCTAGCTACAACGA AGGCCTGA	4259
2706			GCCCAGGG GGCTAGCTACAACGA TGGACAGG	4260
2713			ATGGAGAG GGCTAGCTACAACGA CCAGGGCT	4261
2720			AAAGGCTA GGCTAGCTACAACGA GGAGAGCC	4262
2723			CCCAAAGG GGCTAGCTACAACGA TATGGAGA	4263
2740			TCTCCCAA GGCTAGCTACAACGA CTCCCCCT	4264
2750			CTGACCGG GGCTAGCTACAACGA CTCTCCCA	4265
2754			ACCCCTGA GGCTAGCTACAACGA CGGCCTCT	4266
2761			AGCCCAGA GGCTAGCTACAACGA CCCTGACC	4267
2767			CACCACAG GGCTAGCTACAACGA CCAGACCC	4268
2770			CACCACCA CCCTACCTACAACCA ACCCCAGA	4269

2773	GGGCUGUG G UGCUCUCU	1942	AGAGAGCA GGCTAGCTACAACGA CACAGCCC	4070
2775	GCUGUGGU G CUCUCUCC	1942	GGAGAGAG GGCTAGCTACAACGA ACCACAGC	4270
2788	CUCCUCCC G CCUGCCCC	1943	GGGGCAGG GGCTAGCTACAACGA GGGAGGAG	4271
2792	UCCCGCCU G CCCCAGUG	1944	CACTGGGG GGCTAGCTACAACGA AGGCGGGA	4272
2798	CUGCCCA G UGUCCACG	1945	CGTGGACA GGCTAGCTACAACGA TGGGGCAG	4273
2800	GCCCAGU G UCCACGGC		GCCGTGGA GGCTAGCTACAACGA ACTGGGGC	4274
2804	CAGUGUCC A CGGCUUCU	1947	AGAAGCCG GGCTAGCTACAACGA GGACACTG	4275
2807	UGUCCACG G CUUCUGGC	1948	GCCAGAAG GGCTAGCTACAACGA CGTGGACA	4276
2814	GGCUUCUG G CAGAGAGC	1949	GCTCTCTG GGCTAGCTACAACGA CAGAAGCC	4277
2821	GGCAGAGA G CUCUGGAC	1950	GTCCAGAG GGCTAGCTACAACGA TCTCTGCC	4278
2828	AGCUCUGG A CAAGCAGG	1951	CCTGCTTG GGCTAGCTACAACGA CCAGAGCT	4279
2832	CUGGACAA G CAGGCAGA	1952	TCTGCCTG GGCTAGCTACAACGA CCAGAGCT	4280
2836	ACAAGCAG G CAGAUCAU	1953	ATGATCTG GGCTAGCTACAACGA CTGCTTGT	4281
2840	GCAGGCAG A UCAUAAGG	1954	CCTTATGA GGCTAGCTACAACGA CTGCCTGC	4282
2843	GGCAGAUC A UAAGGACA	1955	<u> </u>	4283
2849	UCAUAAGG A CAGAGAGC	1956	TGTCCTTA GGCTAGCTACAACGA GATCTGCC	4284
2856	GACAGAGA G CUUACUGU	1957	GCTCTCTG GGCTAGCTACAACGA CCTTATGA	4285
2860	GAGAGCUU A CUGUGCUU	1958	ACAGTAAG GGCTAGCTACAACGA TCTCTGTC	4286
2863	AGCUUACU G UGCUUCUA	1959	AAGCACAG GGCTAGCTACAACGA AAGCTCTC	4287
2865	CUUACUGU G CUUCUACC	1960	TAGAAGCA GGCTAGCTACAACGA AGTAAGCT	4288
2871		1961	GGTAGAAG GGCTAGCTACAACGA ACAGTAAG	4289
2875	GUGCUUCU A CCAACUAG UUCUACCA A CUAGGAGG	1962	CTAGTTGG GGCTAGCTACAACGA AGAAGCAC	4290
		1963	CCTCCTAG GGCTAGCTACAACGA TGGTAGAA	4291
2884	CUAGGAGG G CGUCCUGG	1964	CCAGGACG GGCTAGCTACAACGA CCTCCTAG	4292
2886	AGGAGGGC G UCCUGGUC	1965	GACCAGGA GGCTAGCTACAACGA GCCCTCCT	4293
2892	GCGUCCUG G UCCUCCAG	1966	CTGGAGGA GGCTAGCTACAACGA CAGGACGC	4294
2907	AGAGGGAG G UGGUUUCA	1967	TGAAACCA GGCTAGCTACAACGA CTCCCTCT	4295
2910	GGGAGGUG G UUUCAGGG	1968	CCCTGAAA GGCTAGCTACAACGA CACCTCCC	4296
2919	UUUCAGGG G UUGGGGAU	1969	ATCCCCAA GGCTAGCTACAACGA CCCTGAAA	4297
2926	GGUUGGGG A UCUGUGCC	1970	GGCACAGA GGCTAGCTACAACGA CCCCAACC	4298
2930	GGGGAUCU G UGCCGGUG	1971	CACCGGCA GGCTAGCTACAACGA AGATCCCC	4299
2932	GGAUCUGU G CCGGUGGC	1972	GCCACCGG GGCTAGCTACAACGA ACAGATCC	4300
2936	CUGUGCCG G UGGCUCUG	1973	CAGAGCCA GGCTAGCTACAACGA CGGCACAG	4301
2939	UGCCGGUG G CUCUGGUC	1974	GACCAGAG GGCTAGCTACAACGA CACCGGCA	4302
2945	UGGCUCUG G UCUCUGCU	1975	AGCAGAGA GGCTAGCTACAACGA CAGAGCCA	4303
2951	UGGUCUCU G CUGGGAGC	1976	GCTCCCAG GGCTAGCTACAACGA AGAGACCA	4304
2958	UGCUGGGA G CCUUCUUG	1977	CAAGAAGG GGCTAGCTACAACGA TCCCAGCA	4305
2967	CCUUCUUG G CGGUGAGA	1978	TCTCACCG GGCTAGCTACAACGA CAAGAAGG	4306
2970	UCUUGGCG G UGAGAGGC	1979	GCCTCTCA GGCTAGCTACAACGA CGCCAAGA	4307
2977	GGUGAGAG G CAUCACCU	1980	AGGTGATG GGCTAGCTACAACGA CTCTCACC	4308
2979	UGAGAGGC A UCACCUUU	1981	AAAGGTGA GGCTAGCTACAACGA GCCTCTCA	4309
2982	GAGGCAUC A CCUUUCCU	1982	AGGAAAGG GGCTAGCTACAACGA GATGCCTC	4310
2992	CUUUCCUG A CUUGCUCC	1983	GGAGCAAG GGCTAGCTACAACGA CAGGAAAG	4311
2996	CCUGACUU G CUCCCAGC	1984	GCTGGGAG GGCTAGCTACAACGA AAGTCAGG	4312
3003	UGCUCCCA G CGUGAAAU	1985	ATTTCACG GGCTAGCTACAACGA TGGGAGCA	4313
3005	CUCCCAGC G UGAAAUGC	1986	GCATTTCA GGCTAGCTACAACGA GCTGGGAG	4314
3010	AGCGUGAA A UGCACCUG	1987	CAGGTGCA GGCTAGCTACAACGA TTCACGCT	4315
3012	CGUGAAAU G CACCUGCC	1988	GGCAGGTG GGCTAGCTACAACGA ATTTCACG	4316
3014	UGAAAUGC A CCUGCCAA	1989	TTGGCAGG GGCTAGCTACAACGA GCATTTCA	4317
3018	AUGCACCU G CCAAGAAU	1990	ATTCTTGG GGCTAGCTACAACGA AGGTGCAT	4318
3025	UGCCAAGA A UGGCAGAC	1991	GTCTGCCA GGCTAGCTACAACGA TCTTGGCA	4319
3028	CAAGAAUG G CAGACAUA	1992	TATGTCTG GGCTAGCTACAACGA CATTCTTG	4320
3032	AAUGGCAG A CAUAGGGA	1993	TCCCTATG GGCTAGCTACAACGA CTGCCATT	4321
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			CONTROL OF	1222
3034	UGGCAGAC A UAGGGACC	1994	GGTCCCTA GGCTAGCTACAACGA GTCTGCCA	4322
3040	ACAUAGGG A CCCCGCCU	1995	AGGCGGG GGCTAGCTACAACGA CCCTATGT	4323
3045	GGGACCCC G CCUCCUGG	1996	CCAGGAGG GGCTAGCTACAACGA GGGGTCCC	4324
3054	CCUCCUGG G CCUUCACA	1997	TGTGAAGG GGCTAGCTACAACGA CCAGGAGG	4325
3060	GGGCCUUC A CAUGCCCA	1998	TGGGCATG GGCTAGCTACAACGA GAAGGCCC	4326
3062	GCCUUCAC A UGCCCAGU	1999	ACTGGGCA GGCTAGCTACAACGA GTGAAGGC	4327
3064	CUUCACAU G CCCAGUUU	2000	AAACTGGG GGCTAGCTACAACGA ATGTGAAG	4328
3069	CAUGCCCA G UUUUCUUC	2001	GAAGAAAA GGCTAGCTACAACGA TGGGCATG	4329
3079	UUUCUUCG G CUCUGUGG	2002	CCACAGAG GGCTAGCTACAACGA CGAAGAAA	4330
3084	UCGGCUCU G UGGCCUGA	2003	TCAGGCCA GGCTAGCTACAACGA AGAGCCGA	4331
3087	GCUCUGUG G CCUGAAGC	2004	GCTTCAGG GGCTAGCTACAACGA CACAGAGC	4332
3094	GGCCUGAA G CGGUCUGU	2005	ACAGACCG GGCTAGCTACAACGA TTCAGGCC	4333
3097	CUGAAGCG G UCUGUGGA	2006	TCCACAGA GGCTAGCTACAACGA CGCTTCAG	4334
3101	AGCGGUCU G UGGACCUU	2007	AAGGTCCA GGCTAGCTACAACGA AGACCGCT	4335
3105	GUCUGUGG A CCUUGGAA	2008	TTCCAAGG GGCTAGCTACAACGA CCACAGAC	4336
3114	CCUUGGAA G UAGGGCUC	2009	GAGCCCTA GGCTAGCTACAACGA TTCCAAGG	4337
3119	GAAGUAGG G CUCCAGCA	2010	TGCTGGAG GGCTAGCTACAACGA CCTACTTC	4338
3125	GGGCUCCA G CACCGACU	2011	AGTCGGTG GGCTAGCTACAACGA TGGAGCCC	4339
3127	GCUCCAGC A CCGACUGG	2012	CCAGTCGG GGCTAGCTACAACGA GCTGGAGC	4340
3131	CAGCACCG A CUGGCCUC	2013	GAGGCCAG GGCTAGCTACAACGA CGGTGCTG	4341
3135	ACCGACUG G CCUCAGGC	2014	GCCTGAGG GGCTAGCTACAACGA CAGTCGGT	4342
3142	GGCCUCAG G CCUCUGCC	2015	GGCAGAGG GGCTAGCTACAACGA CTGAGGCC	4343
3148	AGGCCUCU G CCUCAUUG	2016	CAATGAGG GGCTAGCTACAACGA AGAGGCCT	4344
3153	UCUGCCUC A UUGGUGGU	2017	ACCACCAA GGCTAGCTACAACGA GAGGCAGA	4345
3157	CCUCAUUG G UGGUCGGG	2018	CCCGACCA GGCTAGCTACAACGA CAATGAGG	4346
3160	CAUUGGUG G UCGGGUAG	2019	CTACCCGA GGCTAGCTACAACGA CACCAATG	4347
3165	GUGGUCGG G UAGCGGCC	2020	GGCCGCTA GGCTAGCTACAACGA CCGACCAC	4348
3168	GUCGGGUA G CGGCCAGU	2021	ACTGGCCG GGCTAGCTACAACGA TACCCGAC	4349
3171	GGGUAGCG G CCAGUAGG	2022	CCTACTGG GGCTAGCTACAACGA CGCTACCC	4350
3175	AGCGGCCA G UAGGGCGU	2023	ACGCCCTA GGCTAGCTACAACGA TGGCCGCT	4351
3180	CCAGUAGG G CGUGGGAG	2024	CTCCCACG GGCTAGCTACAACGA CCTACTGG	4352
3182	AGUAGGGC G UGGGAGCC	2025	GGCTCCCA GGCTAGCTACAACGA GCCCTACT	4353
3188	GCGUGGGA G CCUGGCCA	2026	TGGCCAGG GGCTAGCTACAACGA TCCCACGC	4354
3193	GGAGCCUG G CCAUCCCU	2027	AGGGATGG GGCTAGCTACAACGA CAGGCTCC	4355
3196		2028	GGCAGGGA GGCTAGCTACAACGA GGCCAGGC	4356
3202		2029	CCAGGAGG GGCTAGCTACAACGA AGGGATGG	4357
3212			CTCGTCCA GGCTAGCTACAACGA TCCAGGAG	4358
3216			CAACCTCG GGCTAGCTACAACGA CCACTCCA	4359
3221			GCTGCCAA GGCTAGCTACAACGA CTCGTCCA	4360
3225			ACCAGCTG GGCTAGCTACAACGA CAACCTCG	4361
3228			CGGACCAG GGCTAGCTACAACGA TGCCAACC	4362
3232			CAGACGGA GGCTAGCTACAACGA CAGCTGCC	4363
3236			GGAGCAGA GGCTAGCTACAACGA GGACCAGC	4364
3240			GGCAGGAG GGCTAGCTACAACGA AGACGGAC	4365
3246			GAGTGGGG GGCTAGCTACAACGA AGGAGCAG	4366
3251			GGGGAGAG GGCTAGCTACAACGA GGGGCAGG	4367
3261			GGCAGGGG GGCTAGCTACAACGA GGGGGAGA	4368
3267			GGTGAGGG GGCTAGCTACAACGA AGGGGCGG	4369
3273			CCCTACCC CCCTACCTACTACCA GAGGGCAG	4370
3278			CCCAACCC CCCTACCTACAACGA AGGGTGAG	4371
3284			COUNCOCC COCTAGCTACAACGA AAGGGTAG	4372
<u> </u>			GGGAGGG GCGTACCTACAACGA GCGGCAAG	4373
3289	COORCECC A COCCOGCO	2045		1

3291	UGCCCCAC G CCUGCCUC	2046	GAGGCAGG GGCTAGCTACAACGA GTGGGGCA	4374
3295	CCACGCCU G CCUCAUGG	2047	CCATGAGG GGCTAGCTACAACGA AGGCGTGG	4375
3300	CCUGCCUC A UGGCUGGU	2048	ACCAGCCA GGCTAGCTACAACGA GAGGCAGG	4376
3303	GCCUCAUG G CUGGUUGC	2049	GCAACCAG GGCTAGCTACAACGA CATGAGGC	4377
3307	CAUGGCUG G UUGCUCUU	2050	AAGAGCAA GGCTAGCTACAACGA CAGCCATG	4378
3310	GGCUGGUU G CUCUUGGA	2051	TCCAAGAG GGCTAGCTACAACGA AACCAGCC	4379
3319	CUCUUGGA G CCUGGUAG	2052	CTACCAGG GGCTAGCTACAACGA TCCAAGAG	4380
3324	GGAGCCUG G UAGUGUCA	2053	TGACACTA GGCTAGCTACAACGA CAGGCTCC	4381
3327	GCCUGGUA G UGUCACUG	2054	CAGTGACA GGCTAGCTACAACGA TACCAGGC	4382
3329	CUGGUAGU G UCACUGGC	2055	GCCAGTGA GGCTAGCTACAACGA ACTACCAG	4383
3332	GUAGUGUC A CUGGCUCA	2056	TGAGCCAG GGCTAGCTACAACGA GACACTAC	4384
3336	UGUCACUG G CUCAGCCU	2057	AGGCTGAG GGCTAGCTACAACGA CAGTGACA	4385
3341	CUGGCUCA G CCUUGCUG	2058	CAGCAAGG GGCTAGCTACAACGA TGAGCCAG	4386
3346	UCAGCCUU G CUGGGUAU	2059	ATACCCAG GGCTAGCTACAACGA AAGGCTGA	4387
3351	CUUGCUGG G UAUACACA	2060	TGTGTATA GGCTAGCTACAACGA CCAGCAAG	4388
3353	UGCUGGGU A UACACAGG	2061	CCTGTGTA GGCTAGCTACAACGA ACCCAGCA	4389
3355	CUGGGUAU A CACAGGCU	2062	AGCCTGTG GGCTAGCTACAACGA ATACCCAG	4390
3357	GGGUAUAC A CAGGCUCU	2063	AGAGCCTG GGCTAGCTACAACGA GTATACCC	4391
3361	AUACACAG G CUCUGCCA	2064	TGGCAGAG GGCTAGCTACAACGA CTGTGTAT	4392
3366	CAGGCUCU G CCACCCAC	2065	GTGGGTGG GGCTAGCTACAACGA AGAGCCTG	4393
3369	GCUCUGCC A CCCACUCU	2066	AGAGTGGG GGCTAGCTACAACGA GGCAGAGC	
3373	UGCCACCC A CUCUGCUC	2067	GAGCAGAG GGCTAGCTACAACGA GGGTGGCA	4394
3378	CCCACUCU G CUCCAAGG	2068	CCTTGGAG GGCTAGCTACAACGA AGAGTGGG	4395
3388	UCCAAGGG G CUUGCCCU	2069	AGGGCAAG GGCTAGCTACAACGA CCCTTGGA	4396
3392	AGGGGCUU G CCCUGCCU	2070	AGGCAGGG GGCTAGCTACAACGA AAGCCCCT	4397
3397	CUUGCCCU G CCUUGGGC	2071	GCCCAAGG GGCTAGCTACAACGA AGGGCAAG	4398
3404	UGCCUUGG G CCAAGUUC	2072	GAACTIGG GGCTAGCTACAACGA CCAAGGCA	4399
3409	UGGGCCAA G UUCUAGGU	2072	ACCTAGAA GGCTAGCTACAACGA TTGGCCCA	4400
3416	AGUUCUAG G UCUGGCCA	2074	TGGCCAGA GGCTAGCTACAACGA CTAGAACT	4401
3421	UAGGUCUG G CCACAGCC	2075	GGCTGTGG GGCTAGCTACAACGA CAGACCTA	4402 4403
3424	GUCUGGCC A CAGCCACA	2076	TGTGGCTG GGCTAGCTACAACGA GGCCAGAC	4404
3427	UGGCCACA G CCACAGAC	2077	GTCTGTGG GGCTAGCTACAACGA TGTGGCCA	4405
3430	CCACAGCC A CAGACAGC	2078	GCTGTCTG GGCTAGCTACAACGA GGCTGTGG	4406
3434	AGCCACAG A CAGCUCAG	2079	CTGAGCTG GGCTAGCTACAACGA CTGTGGCT	4407
3437	CACAGACA G CUCAGUCC	2080	GGACTGAG GGCTAGCTACAACGA TGTCTGTG	4408
3442	ACAGCUCA G UCCCCUGU	2081	ACAGGGGA GGCTAGCTACAACGA TGAGCTGT	4409
3449	AGUCCCCU G UGUGGUCA	2082	TGACCACA GGCTAGCTACAACGA AGGGGACT	4410
3451	UCCCCUGU G UGGUCAUC	2082	GATGACCA GGCTAGCTACAACGA ACAGGGGA	4410
3454	CCUGUGUG G UCAUCCUG	2084	CAGGATGA GGCTAGCTACAACGA CACACAGG	
3457	GUGUGGUC A UCCUGGCU	2085	AGCCAGGA GGCTAGCTACAACGA GACCACAC	4412
3463	UCAUCCUG G CUUCUGCU	2085	AGCAGAAG GGCTAGCTACAACGA CAGGATGA	4413
3469	UGGCUUCU G CUGGGGGC	2087	GCCCCAG GGCTAGCTACAACGA AGAAGCCA	4414
3476	UGCUGGGG G CCCACAGC	2088	GCTGTGGG GGCTAGCTACAACGA CCCCAGCA	4415
3480	GGGGCCC A CAGCGCCC	2089	GGGCGCTG GGCTAGCTACAACGA GGGCCCCC	4416
3483	GGCCCACA G CGCCCCUG	2090	CAGGGGCG GGCTAGCTACAACGA TGTGGGCC	4417 4418
3485	CCCACAGC G CCCCUGGU	2091	ACCAGGGG GGCTAGCTACAACGA GCTGTGGG	4418
3492	CGCCCCUG G UGCCCCUC	2092	GAGGGCA GGCTAGCTACAACGA CAGGGGCG	
3494	CCCCUGGU G CCCCUCCC	2093	GGGAGGG GGCTAGCTACAACGA ACCAGGGG	4420
3511	CUCCCAGG G CCCGGGUU	2094	AACCCGGG GGCTAGCTACAACGA CCTGGGAG	4421
3517	GGCCCGG G UUGAGGCU	2095	AGCCTCAA GGCTAGCTACAACGA CCGGGCCC	4422
3523	GGGUUGAG G CUGGGCCA	2096	TGGCCCAG GGCTAGCTACAACGA CTCAACCC	4423
3528	GAGGCUGG G CCAGGCCC	2097	GGGCCTGG GGCTAGCTACAACGA CCAGCCTC	
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3533	UGGGCCAG G CCCUCUGG	2098	CCAGAGGG GGCTAGCTACAACGA CTGGCCCA	4426
3543	CCUCUGGG A CGGGGACU	2099	AGTCCCCG GGCTAGCTACAACGA CCCAGAGG	4427
3549	GGACGGGG A CUUGUGCC	2100	GGCACAAG GGCTAGCTACAACGA CCCCGTCC	4428
3553	GGGGACUU G UGCCCUGU	2101	ACAGGGCA GGCTAGCTACAACGA AAGTCCCC	4429
3555	GGACUUGU G CCCUGUCA	2102	TGACAGGG GGCTAGCTACAACGA ACAAGTCC	4430
3560	UGUGCCCU G UCAGGGUU	2103	AACCCTGA GGCTAGCTACAACGA AGGGCACA	4431
3566	CUGUCAGG G UUCCCUAU	2104	ATAGGGAA GGCTAGCTACAACGA CCTGACAG	4432
3573	GGUUCCCU A UCCCUGAG	2105	CTCAGGGA GGCTAGCTACAACGA AGGGAACC	4433
3582	UCCCUGAG G UUGGGGGA	2106	TCCCCCAA GGCTAGCTACAACGA CTCAGGGA	4434
3593	GGGGGAGA G CUAGCAGG	2107	CCTGCTAG GGCTAGCTACAACGA TCTCCCCC	4435
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3602	CUAGCAGG G CAUGCCGC	2109	GCGGCATG GGCTAGCTACAACGA CCTGCTAG	4437
3604	AGCAGGGC A UGCCGCUG	2110	CAGCGGCA GGCTAGCTACAACGA GCCCTGCT	4438
3606	CAGGGCAU G CCGCUGGC	2111	GCCAGCGG GGCTAGCTACAACGA ATGCCCTG	4439
3609	GGCAUGCC G CUGGCUGG	2112	CCAGCCAG GGCTAGCTACAACGA GGCATGCC	4440
3613	UGCCGCUG G CUGGCCAG	2113	CTGGCCAG GGCTAGCTACAACGA CAGCGGCA	4441
3617	GCUGGCUG G CCAGGGCU	2114	AGCCCTGG GGCTAGCTACAACGA CAGCCAGC	4442
3623	UGGCCAGG G CUGCAGGG	2115	CCCTGCAG GGCTAGCTACAACGA CCTGGCCA	4443
3626	CCAGGGCU G CAGGGACA	2116	TGTCCCTG GGCTAGCTACAACGA AGCCCTGG	4444
3632	CUGCAGGG A CACUCCCC	2117	GGGGAGTG GGCTAGCTACAACGA CCCTGCAG	4445
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3646	CCCCUUUU G UCCAGGGA	2119	TCCCTGGA GGCTAGCTACAACGA AAAAGGGG	4447
3655	UCCAGGGA A UACCACAC	2120	GTGTGGTA GGCTAGCTACAACGA TCCCTGGA	4448
3657	CAGGGAAU A CCACACUC	2121	GAGTGTGG GGCTAGCTACAACGA ATTCCCTG	4449
3660	GGAAUACC A CACUCGCC	2122	GGCGAGTG GGCTAGCTACAACGA GGTATTCC	4450
3662	AAUACCAC A CUCGCCCU	2123	AGGGCGAG GGCTAGCTACAACGA GTGGTATT	4451
3666	CCACACUC G CCCUUCUC	2124	GAGAAGGG GGCTAGCTACAACGA GAGTGTGG	4452
3679	UCUCUCCA G CGAACACC	2125	GGTGTTCG GGCTAGCTACAACGA TGGAGAGA	4453
3683	UCCAGCGA A CACCACAC	2126	GTGTGGTG GGCTAGCTACAACGA TCGCTGGA	4454
3685	CAGCGAAC A CCACACUC	2127	GAGTGTGG GGCTAGCTACAACGA GTTCGCTG	4455
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3690	AACACCAC A CUCGCCCU	2129	AGGGCGAG GGCTAGCTACAACGA GTGGTGTT	4457
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3718			AGGGGGAG GGCTAGCTACAACGA GTGGCGTC	4461
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3739			GTGTGGCG GGCTAGCTACAACGA CCCCTGGA	4458
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3830	GACGCCAC A CUCGCCCU	2136	AGGGCGAG GGCTAGCTACAACGA GTGGCGTC	4464
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3842	GCCCUUCU G UCCAGGGG	2138	CCCCTGGA GGCTAGCTACAACGA AGAAGGGC	4466
3851	UCCAGGGG A CGCCACAC	2130	GTGTGGCG GGCTAGCTACAACGA CCCCTGGA	4458
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3862	CCACACUC G CCCUUCUC	2124	GAGAAGGG GGCTAGCTACAACGA GAGTGTGG	4452
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3909	CAGGGGAC G CCACACUC	2131	GAGTGTGG GGCTAGCTACAACGA GTCCCCTG	4459
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3998	GACGCCAC A CUCGCCCU	2136	AGGGCGAG GGCTAGCTACAACGA GTGGCGTC	4463
4002	CCACACUC G CCCUUCUC	2124	GAGAAGGG GGCTAGCTACAACGA GAGTGTGG	4464
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4108	GGGACGCC A CACUCCCC	2131		4459
	COLOCCO A CACOCCC	2132	GGGGAGTG GGCTAGCTACAACGA GGCGTCCC	4460

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4166	GACGCCAC A CUCCCCCU	2133	AGGGGGAG GGCTAGCTACAACGA GTGGCGTC	4461
4178	CCCCUUCU G UCCAGGGG	2134	CCCCTGGA GGCTAGCTACAACGA AGAAGGGG	4462
4187	UCCAGGGG A CGCCACAC	2130	GTGTGGCG GGCTAGCTACAACGA CCCCTGGA	4458
4189	CAGGGGAC G CCACACUC	2131	GAGTGTGG GGCTAGCTACAACGA GTCCCCTG	4459
4192	GGGACGCC A CACUCGCC	2135	GGCGAGTG GGCTAGCTACAACGA GGCGTCCC	4463
4194	GACGCCAC A CUCGCCCU	2136	AGGGCGAG GGCTAGCTACAACGA GTGGCGTC	4464
4198	CCACACUC G CCCUUCUC	2124	GAGAAGGG GGCTAGCTACAACGA GAGTGTGG	4452
4215	UCCAGGGG A CGCCACAC	2130	GTGTGGCG GGCTAGCTACAACGA CCCCTGGA	4458
4217	CAGGGGAC G CCACACUC	2131	GAGTGTGG GGCTAGCTACAACGA GTCCCCTG	4459
4217	GGGACGCC A CACUCCCC	2132	GGGGAGTG GGCTAGCTACAACGA GGCGTCCC	4460
4222	GACGCCAC A CUCCCCCU	2132	AGGGGGAG GGCTAGCTACAACGA GTGGCGTC	4461
4243	UCCAGGGG A CGCCACAC	2130	GTGTGGCG GGCTAGCTACAACGA CCCCTGGA	4458
4245	CAGGGGAC G CCACACUC	2131	GAGTGTGG GGCTAGCTACAACGA GTCCCCTG	4459
4248	GGGACGCC A CACUCCCC	2132	GGGGAGTG GGCTAGCTACAACGA GGCGTCCC	4460
4250	GACGCCAC A CUCCCCCU	2132	AGGGGGAG GGCTAGCTACAACGA GTGGCGTC	4461
4271	UCCAGGG A CGCCACAC	2130	GTGTGGCG GGCTAGCTACAACGA CCCCTGGA	4458
4273	CAGGGGAC G CCACACUC	2131	GAGTGTGG GGCTAGCTACAACGA GTCCCCTG	4459
4276	GGGACGCC A CACUCCCC	2132	GGGGAGTG GGCTAGCTACAACGA GGCGTCCC	4460
4278	GACGCCAC A CUCCCCCU	2132	AGGGGGAG GGCTAGCTACAACGA GTGGCGTC	4461
4290	CCCCUUCU G UCCAGGGG	2134	CCCCTGGA GGCTAGCTACAACGA AGAAGGGG	4462
4299	UCCAGGGG A CGCCACAC	2130	GTGTGGCG GGCTAGCTACAACGA CCCCTGGA	4458
4301	CAGGGGAC G CCACACUÇ	2131	GAGTGTGG GGCTAGCTACAACGA GTCCCCTG	4459
4304	GGGACGCC A CACUCGCC	2135	GGCGAGTG GGCTAGCTACAACGA GGCGTCCC	4463
4306	GACGCCAC A CUCGCCCU	2136	AGGGCGAG GGCTAGCTACAACGA GTGGCGTC	4464
4310	CCACACUC G CCCUUCUC	2124	GAGAAGGG GGCTAGCTACAACGA GAGTGTGG	4452
4327	UCCAGGGG A CGCCACAC	2130	GTGTGGCG GGCTAGCTACAACGA CCCCTGGA	4458
4329	CAGGGGAC G CCACACUC	2131	GAGTGTGG GGCTAGCTACAACGA GTCCCCTG	4459
4332	GGGACGCC A CACUCGCC	2135	GGCGAGTG GGCTAGCTACAACGA GGCGTCCC	4463
4334	GACGCCAC A CUCGCCCU	2136	AGGGCGAG GGCTAGCTACAACGA GTGGCGTC	4464
4338	CCACACUC G CCCUUCUC	2124	GAGAAGGG GGCTAGCTACAACGA GAGTGTGG	4452
4355	UCCAGGGG A CGCCACAC	2130	GTGTGGCG GGCTAGCTACAACGA CCCCTGGA	4458
4357	CAGGGGAC G CCACACUC		GAGTGTGG GGCTAGCTACAACGA GTCCCCTG	4459
4360	GGGACGCC A CACUCGCC		GGCGAGTG GGCTAGCTACAACGA GGCGTCCC	4463
4360	GACGCCAC A CUCGCCCU		AGGGCGAG GGCTAGCTACAACGA GTGGCGTC	4464
4362	CCACACUC G CCCUUCUC		GAGAAGGG GGCTAGCTACAACGA GAGTGTGG	4452
4383			GTGTGGCG GGCTAGCTACAACGA CCCCTGGA	4458
4385			AAGTGTGG GGCTAGCTACAACGA GTCCCCTG	4467
4388			GGCAAGTG GGCTAGCTACAACGA GGCGTCCC	4468
4390			AGGGCAAG GGCTAGCTACAACGA GTGGCGTC	4469
4394			CAGAAGGG GGCTAGCTACAACGA AAGTGTGG	4470
4402			TCCCTGGA GGCTAGCTACAACGA AGAAGGGC	4471
4411		1	CUCUCCO CCCTACCTACAACGA TCCCTGGA	4472
4413			CACTOTIC CONTACTACIA ATTOCCTO	4449
<u> </u>			CCCCACTC CCCTACCTACAACGA GGCATTCC	4473
4416	JUANUGEC A GREECEC	2146	<u> </u>	

4435 UCUCCCOA G CRUCCOGA 2149 CTCGGAGG GCTAGCTACAACGA TGGGGGGA 4475 4436 CCCUCCGA G CRUCCGA 2149 CTCGGAGG GGTAGCTACAACGA TGGGGGGA 4476 4449 UCCGAGUG A CRUCCCA 2150 GCTGGCTA GGCTAGCTACAACGA TGGGGGGC 4477 4449 UCCGAGUG A CUCCCCA 2151 GAAGCTGG GGCTAGCTACAACGA TGGTGGGG 4477 4441 UCCGAGUG A CUCCCCA 2151 GAAGCTGG GGCTAGCTACAACGA CACTCGGA 4478 4453 AGUGACCA G CUCCCCA 2152 TGGGGAGA GGCTAGCTACAACGA TGGTGGAGC 4465 AUCGAUGA A UAACUUC 2155 TCTATCGA GGCTAGCTACAACGA TGGTGCAC 4465 AUCGAUGA A UAACUUC 2155 TCTATCGA GGCTAGCTACAACGA CGATGGGG 4486 4465 AUCGAUGA A UAACUUC 2155 TCTATCGA GGCTAGCTACAACGA CGATGGGG 4486 4466 AUCGAUGA A CUUCCCGA 2155 TCTATCGA GGCTAGCTACAACGA CGATGGGG 4486 4479 UUCCCGAG G CCACGUGG 2156 GCTCCTGG GGCTAGCTACAACGA CTATCGAT 4482 4486 GACCAGGA G CCUCUMG 2157 CTAGGAGA GGCTAGCTACAACGA CTATCGAT 4482 4496 CUCUAGG G CUGCCGGG 2156 CCCGGCAG GGCTAGCTACAACGA CCTAGGAG 4484 4499 CUCUAGGGCU G CCCCCUUMG 2157 CTAGGAGG GGCTAGCTACAACGA CCTAGGAG 4484 4499 CUCUAGGGCU G CCCCCUUMG 2157 CTAGGAGG GGCTAGCTACAACGA CCTAGGAG 4484 4499 CUCUAGGCU G CUCCUCCC 2159 GCACCGG GGCTAGCTACAACGA CCTAGGAG 4484 4590 COUCUAGGCU G CUCCUCC 2163 GGCTGGCTACAACGA CCCCGCAC 4487 4500 GCGGGGU G CCACCCU 3161 CAGGGTGG GGCTAGCTACAACGA ACCCGGAC 4487 4500 GCGGGGU G CCACCCU 3161 CAGGGTGG GGCTAGCTACAACGA ACCCGGAC 4488 4500 GCGGGGU G CCACCCU 3161 CAGGGGG GGCTAGCTACAACGA ACCCGGAC 4489 4510 CACCCUC G CUCCUCC 2163 GGAAGGAG GGCTAGCTACAACGA ACCCGGAC 4489 4524 CUCCULCC A CCCGUGCU 2163 GGAAGGAG GGCTAGCTACAACGA ACCGGAGG 4489 4524 CUCCULCC A CCCGUGCU 2163 GGAAGGAG GGCTAGCTACAACGA ACCGGAGG 4489 4524 CUCCULCC A CCCGUGCU 2163 GGAAGGAG GGCTAGCTACAACGA GGCACCCG 4489 4525 CCUUCCAC A CCGUGCU 2166 GACCAGGG GGCTAGCTACAACGA GGCACCCG 4489 4526 CCUUCCAC A CCGUGCU 2166 GACCAGGG GGCTAGCTACAACGA GGCACCCG 4489 4527 UCCCACCC G UCCGGGCC 2167 GCACCGGG GGCTAGCTACAACGA ACCGGAGA 4491 4528 CCCCUCCC G UCCGGGCC 2167 GCACCGGG GGCTAGCTACAACGA ACCGGAGA 4491 4531 CACCCUC G UCCGGGCC 2167 GCACCGGG GGCTAGCTACAACGA ACCGGAGG 4491 4531 CACCCUC G UCCGCGCC 2167 GCACCGGG GGCTAGCTACAACGA ACCGGAGG 4491 4531 CACCCUC					
4448   CCCCAGGA G CUUCCGAG   2149   CTCGGAGG GGTAGCTACAACGA TOCTGGGG   4476   4446   GCCUCCGA G UDACCAGC   2150   GCTGGTCA GGTAGCTACAACGA TOCTGGGG   4477   4449   UCCGAGUG A CCACCUGA   2151   GAAGCTGG GGTAGCTACAACGA TOCGAGGG   4477   4449   UCCGAGUGA C CUUCCCC   2151   GAAGCTGG GGTAGCTACAACGA TOCGAGGG   4478   4461   GCUUCCCC A UGAGUAGA   2153   TCTGGGAAG GGTAGCTACAACGA TOGTCGAC   4479   4461   GCUUCCCC A UGAGUAGA   2154   TGGGAAG GGTAGCTACAACGA TOGTCACCT   4479   4461   GCUUCCCC A UGAGUAGA   2154   TGGGGAAG GGTAGCTACAACGA CGATGGGG   4480   4466   AUCGAUGA A UUCCCGA   2155   TCTGGGAAG GGTAGCTACAACGA CTATCGAT   4491   4466   AUCGAUGA C UUCCCGA   2156   GCTCCTGG GGTAGCTACAACGA CTATCGAT   4492   4479   UUCCCGAG G CCAGGAGC   2156   GCTCGGGAAG GGTAGCTACAACGA CTATCGAT   4494   4479   UUCCCUAGG G UGACCAGC   2156   CCCGGGGG GGTAGCTACAACGA CTCTGGCC   4484   4496   CCUCUAGG G UGACCACC   2150   CCCGGGGG GGTAGCTACAACGA CTCTGGCC   4484   4496   CCUCUAGG G UGACCACC   2150   GGACCGGG GGTAGCTACAACGA CCTAGAGGA   4486   4496   CCUCUAGG G UCCACCC   2161   CAGGGGG GGTAGCTACAACGA ACCCGGAC   4487   4496   CCUCUAGC G UCCCUCC   2161   CAGGGGG GGTAGCTACAACGA ACCCGGC   4487   4496   CCUCUACC   2162   CAGGGGG GGTAGCTACAACGA ACCCGGC   4487   4496   CCUCUCC   CCCCUG   2161   CAGGGGG GGTAGCTACAACGA ACCCGGC   4487   4496   CCUCUCC   CCCCUG   2162   AGCAGGG GGTAGCTACAACGA ACCCGGC   4489   4491   4494   4	4418		2147	AGGGGAG GGCTAGCTACAACGA GTGGCATT	4474
4446 GCCUCCIA G UGACCAGU 2151 GARGTGG GCTAGCTACACGA TCGGAGGC 4477 4449 UCCGAGUU A CCAGCUU 2151 GARGTGG GCTAGCTACAACGA CACTCGGA 4478 4453 AGUGACCA G CUCCCCA 2152 TGGGAGAG GCCTAGCTACAACGA TCGTCACT 4479 4461 GCUUCCCC A UCGAUNAA 2153 TCTATCGA GGCTAGCTACAACGA GCGTAGCTACAACGA CACTCGGA 4480 4465 AUCGAUNA A CUUCCCGA 2155 TCGGAGAG GGCTAGCTACAACGA GGCAACGC 4480 4469 AUCGAUNA A CUUCCCGA 2155 TCGGGAAG GGCTAGCTACAACGA CGATGGGG 4481 4469 AUCGAUNA A CUUCCCGA 2155 TCGGGAAG GGCTAGCTACAACGA CGATGGGG 4481 4479 UUCCCGAG G CCAGGAGC 2156 GCTCCTGG GGCTAGCTACAACGA CTATCGAT 4482 4486 GCCCCGGG G CCCCCUUNA 2157 CTGAGAGG GGCTAGCTACAACGA CTATCGAT 4482 4486 GCCCAGGA G CCCCCUUNA 2157 CTGAGAGG GGCTAGCTACAACGA CCTGGGAA 4481 4486 GCCCCGGGG G CCCCCCUUNA 2157 CTGAGAGG GGCTAGCTACAACGA CCTGGGAA 4481 4486 GCUCCCGG G UGCCCGG 2158 GCCCGGGG GCTAGCTACAACGA CCTGAGGG 4488 4499 CUAGGGCU G CCGGGUGC 2159 GCACCCG GGCTAGCTACAACGA CCCGGCAC 4482 4504 GCUGCCGG G UGCCCCC 2166 GGCTGGCTACAACGA ACCCGGCAC 4487 4509 GCGGGGU G CCCCCCC 2161 GGGTGGCA GGCTAGCTACAACGA ACCCGGCAC 4489 4509 GCGGGU G CCCCCCC 2161 GAGGTGG GGCTAGCTACAACGA ACCCGGCAC 4489 4509 GCGGGUG C CCCCGGCU 2161 CAGGCTGG GGCTAGCTACAACGA CCGGCACC 4489 4509 CUACCACCC G UCCCUUCC 2163 GGANGGAG GGCTAGCTACAACGA ACCCGGCAC 4489 4509 CUACCACCC G UCCCUUCC 2163 GGANGGAG GGCTAGCTACAACGA ACCCGGCAC 4489 4515 CACCCUUCCA A CACCGUGC 2164 GCACCGTG GGCTAGCTACAACGA GGCACCCG 4489 4524 CUCCUUCCA A CACCGUGCU 2165 GGANGGAG GGCTAGCTACAACGA GGCACCCG 4489 4525 UCCCACACC G UCCUUCC 2165 GACCAGG GGCTAGCTACAACGA GGCACCGG 4499 4526 CCUUCCAC A CCCGUGCU 2165 GACCAGG GGCTAGCTACAACGA GGAAGGAG 4491 4526 CCUUCCAC A CCCGUGCU 2165 GACCAGG GGCTAGCTACAACGA GACAGGA 4491 4527 UCCACACC G UCCGUGCG 2167 GTGACCAG GGCTAGCTACAACGA GACAGCA 4491 4528 UCCACACC G UCCGUGCG 2167 GTGACCAG GGCTAGCTACAACGA GACAGCA 4491 4529 UCCACACC G UCCGUGCG 2167 GTGACCAG GGCTAGCTACAACGA GACCAGCA 4491 4520 UCCCGAC C UCCGUGCG 2170 GCCCCCG GGCTAGCTACAACGA ACCGACCA 4491 4521 UCCCGAC C UCCGUGCG 2170 GCCCCCG GGCTAGCTACAACGA CACCACCG 4491 4521 UCCCGAC G UCCACCCC 2166 GCCCCCGAGG GGCTAGCTAC			2148	<u> </u>	4475
4449 UCCGAGUG A CCAGCUUC 2151 GANGCTGG GGCTAGCTACAACGA TGGTCACA 4478 4453 AGUGACCA G CUUCCCCA 2152 TGGGGAAG GGCTAGCTACAACGA TGGTCACT 4479 4461 GCUUCCCC A UCCGANAGA 2153 TTATCACA GGCTAGCTACAACGA CGGCAACGA 4489 4465 CCCCAUCG A UAGACUUC 2154 4469 AUCCCCAA CA UUCCCCAA 2155 TGGGGAAG GGCTAGCTACAACGA CTATGGGA 4489 4469 AUCCCCAA CAUCCCCAA 2155 TCGGGAAG GGCTAGCTACAACGA CTATGGGA 4481 4469 AUCCCCAA CAUCCCCAA 2155 TCGGGAAG GGCTAGCTACAACGA CTATGGGA 4481 4479 UUCCCGAG G CCAGGAGC 2155 GCTCCTGG GGCTAGCTACAACGA CTATGGGA 4481 4486 GGCCACGCG CUCCUCAG 2157 CTAGAGGG GGCTAGCTACAACGA TCCTGGGCA 4481 4496 CUCCUCAGG G CUCCCGGG 2156 GCTCCTGG GGCTAGCTACAACGA TCCTGGGCA 4481 4496 CUCCUCAGG G CUCCCGGG 2159 GCACCCGG GGCTAGCTACAACGA CCTGAGAGG 4482 4499 CUAGGGCG G GGCCACCC 2160 GGTGGCG GGCTAGCTACAACGA CCTGAGAGG 4485 4504 GCUCCUCAG G CACCCUG 2161 GGTGGGC GGCTAGCTACAACGA CCCGGGAGC 4487 4506 UGCCGGGG G GCCACCC 2160 GGTGGCACCC GCCACCC 2160 GGTGGCACCCAACGA ACCCCGG GCTAGCTACAACGA CCCGCAGC 4487 4509 OGGGUGCC A CCCCUGC 2161 GGTGGAGCACCC CACCCGG GCTAGCTACAACGA CCCGCAGC 4487 4515 CCACCCUG C CUCCUUCC 2163 GGAAGGAG GGCTAGCTACAACGA CCCGCAGC 4489 4526 CUCUUCAC A CACCGUGC 2164 GCACGGG GGCTAGCTACAACGA GCCACCCG 4489 4526 CUCUUCAC A CACCGUGC 2163 GAACGAGG GGCTAGCTACAACGA GCACCCG 4489 4526 CUCUUCAC A CACCGUGC 2164 GCACGGG GGCTAGCTACAACGA GGCTAGCTACAACGA GAGGAGGA 4491 4527 UCCACACC G UGCUUCC 2165 GACCAGCA GGCTAGCTACAACGA GGCTAGCTACAACGA GAGGAGGA 4491 4528 UCCACACC G UGCUUCC 2166 GACCAGCA GGCTAGCTACAACGA GAGGAGGA 4491 4531 CACACCGU G CUCCUUCC 2166 GACCAGCA GGCTAGCTACAACGA ACGGTGTGA 4491 4531 CACCGCGG GCCACCTACCTACAACGA ACGGTGTGA 4491 4531 CACCGCGG GCCACCTACCTACAACGA ACGGTTGA 4491 4531 CACCGCG G UGCAGGAG GCCACCGACCA 4491 4531 CACCGCGG GCCACCTACCTACAACGA ACGGTTGA 4491 4531 CACCGCGG GCCACCTACCTACAACGA ACGGTACCTACAACGA ACGCACCGA 4491 4531 CACCGCGG GCCACCGC GCCCACCA 4491 4531 CACCGCGG GCCACCCGC GCCACCACCA 4491 4531 CACCGGGGG GCCACCCGC GCCCACCA 4491 4531 CACCGGG			2149	CTCGGAGG GGCTAGCTACAACGA TGCTGGGG	4476
4463 AGUGACCA G CUUCCCCA 2152 TGGGGAAG GGCTAGCTACAACGA TGGTCACT 4479 4461 GCUUCCCC A UCGAUMAG 2153 TCTATCGA GGCTAGCTACAACGA GGGGAAC 4489 4465 CCCCAUGA A UGACCUUC 2154 GAAGTCTA GGCTAGCTACAACGA CGATGGGG 44891 4469 AUCGAUAG A CUUCCCGA 2155 TCGGGAAG GGCTAGCTACAACGA CTATGGAT 4482 4479 UUCCCGAG G CCAGGMGC 2155 TCGGGAAG GGCTAGCTACAACGA CTATGGAT 4482 4486 GGCCAGGG C CCCUCUAG 2157 CTAGAGGG GGCTAGCTACAACGA CTATGGAT 4482 4496 CUUCUAGG G CUCCUCGG 2157 CTAGAGGG GGCTAGCTACAACGA CTAGAGG 44891 4496 CUUCUAGG G CUCCUCGC 2159 GCCCCCG GGCTAGCTACAACGA TCCTGGGCA 4489 4496 CUUCUAGG G CUCCUCCC 2159 GCCCCCG GGCTAGCTACAACGA CCTAGAGG 4485 4590 GUGGCGG G GCCACCCCG 2159 GCCCCCG GGCTAGCTACAACGA CCCGGAGG 4487 4500 UGCCGGGG G GCCACCCCG 2160 GGGTGGC GGCTAGCTACAACGA CCCGGAGG 4487 4500 UGCCGGGU G CCCCCCC 2161 CAGGGTGG GGCTAGCTACAACGA CCCGGAGC 4487 4500 UGCCGGGU G CCCCCUCC 2161 CAGGGTGG GGCTAGCTACAACGA CCCGGGAG 4488 4509 CGGUGCCA CCCCUGC 2162 GGCAGCCTAGCTACAACGA GGCACCGA 4489 4515 CCACCCUG G CUCCUUCC 2163 GGAAGGAG GGCTAGCTACAACGA GGCACCGA 4489 4524 CUCCUUCC A CACCGUGC 2164 GCACGGG GGCTAGCTACAACGA GGCACCGA 4489 4524 CUCCUUCC A CACCGUGC 2164 GCACGGG GGCTAGCTACAACGA GGAACGA 4491 4525 CCCUCCAC A CCGUGCUC 2166 GACCAGGG GGCTAGCTACAACGA GGAACGAG 4491 4526 CCUUCCAC A CCGUGCUC 2166 GACCAGGG GGCTAGCTACAACGA GGAACGAG 4491 4527 UCCACACC G UGCGUGCC 2166 GACCAGGG GGCTAGCTACAACGA GGGAAGGA 4491 4528 UGCUGCU G UCGGUGC 2167 GCACCGG GGCTAGCTACAACGA GCGTAGGA 4491 4529 UCCACACC G UCGGUCC 2166 GACCAGGG GGCTAGCTACAACGA ACGGTGTG 4491 4520 UGCUGCU G UCGGUGC 2167 GCACCGG GGCTAGCTACAACGA ACGGTGTG 4491 4521 UGUCCAC A CCGGGGG UCGCCUCC 2168 GCAGGGA GGCTAGCTACAACGA ACGGTGTG 4491 4524 UGCUGGU G UCACUGC 2167 GCACCGG GGCTAGCTACAACGA ACGGAGGA 4491 4525 UGCUGGU G UCACUGC 2167 GCACCGG GGCTAGCTACAACGA ACGGAGGA 4491 4526 UGCUGGU G UCACUGC 2167 GCACCGG GGCTAGCTACAACGA ACGGAGGA 4491 4527 UGUCGGA G CCCCUUGC 2167 GCACCGG GGCTAGCTACAACGA ACGGAGGA 4491 4528 UGCUGGGG GUCACUGC 2167 GCACCGG GGCTAGCTACAACGA ACGGAGGA 4491 4529 UGCUCGGG G UCACUGC 2167 GCACGGG GGCTAGCTACAACGA ACGGAGGA 4491 4521 UG		GCCUCCGA G UGACCAGC	2150	GCTGGTCA GGCTAGCTACAACGA TCGGAGGC	4477
4461 GCUUCCCC A UCGAUAGA 2153 TCTATCGA GGCTAGCTACAACGA GGGGAACC 4480 4465 CCCCAUCG A UACAUCUC 2154 GAAGTCTA GGCTAGCTACAACGA CCATTGGG 4481 4469 AUCCAGAA 2155 TCGGGAAG GGCTAGCTACAACGA CTATTGGAT 4482 4479 UUCCCGAG G CUUCCCGA 2156 GCTCGGG GGCTAGCTACAACGA CTATTGGAT 4482 4486 GGCCAGGG G CCAGGAGC 2156 GCTCGG GGCTAGCTACAACGA CTCTGGGAA 4483 4486 GGCCAGGG G CUCUCUAG 2157 CTAGAGGG GGCTAGCTACAACGA CTCTGGGCA 4483 4496 CCUCUAGG G CUCCCGAG 2156 GCTCGGGG GGCTAGCTACAACGA CCTGGGGAA 4483 4496 CCUCUAGG G CUCCCGGG GGCTAGCTACAACGA CCTGGGGAA 4485 4499 CUAGGGGC G GUCCACCC 2160 GGGTGGC GGCTAGCTACAACGA CCCTAGCA 4485 4504 GCUCCUAGG G CACCCCGG GGCTAGCTACAACGA CCCGAGCA 4485 4504 GCUCCGGG G GCCACCCC 2160 GGGTGGC GGCTAGCTACAACGA CCCGCGA 4488 4506 UGCCGGGG GCCACCCCG 2161 AGGGTGG GGCTAGCTACAACGA CCGGCAC 4489 4506 UGCCGGGG GCCACCCCG 2161 AGGGTGG GGCTAGCTACAACGA CCGGCAC 4489 4506 UGCCGGGG GCCACCCCG 2162 AGCCAGGG GGCTAGCTACAACGA CCGGCAC 4489 4506 CCCCCCGC 2164 AGCAGGGG GGCTAGCTACAACGA ACCCGGAC 4489 4506 CCCCCCCC 2163 GAAGGAG GGCTAGCTACAACGA ACCCGGAC 4489 4506 CCCCCCCC 2164 GCACCGCG GGCTAGCTACAACGA GAGGTGG 4489 4506 CCCCCCCC 2164 GCACGGG GGCTAGCTACAACGA GAGGTGG 4489 4504 CCCACCCC A CCCGUGCC 2164 GCACGGG GGCTAGCTACAACGA GAGGTGG 4489 4529 UCCACACC G UGCUGUCC 2165 CAGCAGCA GGCTAGCTACAACGA GAGGAGG 4491 4524 CCCCCCCC A CCCGUGCC 2164 GCACGAC GGCTAGCTACAACGA GAGGAGG 4491 4524 CCCCCCCC A CCCGUGCUC 2166 GCCACAC GGCTAGCTACAACGA GGCTAGCTACAACGA GAGGAGG 4491 4524 CCCCCCCC A CCCGUGCU C167 GTACCAG GGCTAGCTACAACGA GGCAGAGG 4499 4531 CACACCGU G UCACUGCC 2166 GCCAGAC GGCTAGCTACAACGA ACGAGAGG 4499 4531 CACACCGU G UCACUGCC 2167 GCACGAG GGCTAGCTACAACGA ACGAGAGG 4499 4531 CACACCGU G UCACUGCC 2167 GCAGGGG GGCTAGCTACAACGA ACGAGAGG 4499 4541 UGGUCAC C UCACGAGG C171 CCACGAG GGCTAGCTACAACGA ACCAGCA 4491 4552 UCCCACAC G UCACGAGG C171 CCACGAG GGCTAGCTACAACGA ACCAGCA 4491 4552 UCCCACAC G UCACGAGG C171 CCACGAG GGCTAGCTACAACGA ACCAGCA 4491 4551 CCCCCCCG GCCCCCCCG GCCCCCCG GCCCCCCG GCCACCAC ACCACCC ACCACCA 4551 4551 UUCACGGG G CUCACAGA C171 CCACGAGG GGCTAGCTACAACGA ACCAGCC ACCAC	4449	UCCGAGUG A CCAGCUUC	2151	GAAGCTGG GGCTAGCTACAACGA CACTCGGA	4478
4465 CCCCAUGG A 'UNGACHUC' 2154 GAAGTCTA GGTAGCTACAACGA CGATGGGG 4481 4469 AUCGNAGA A 'CUUCCCGA 2155 TCGGGAAG GGCTAGCTACAACGA CTATGGAT 4482 4479 UUCCCGAG G CCAGGAGC 2156 GCTCCTGG GGCTAGCTACAACGA CTATGGAT 4482 4486 GGCCAGGA G CCCUCUAG 2157 CTAGAGGG GGCTAGCTACAACGA CTCGGGGAA 4483 4486 GGCCAGGA G CCUCUAG 2157 CTAGAGGG GGCTAGCTACAACGA TCCTGGGC 4484 4489 CUAGGGCU G 'CCGGGGG 2158 CCGGCAG GGCTAGCTACAACGA TCCTGGAGA 4482 4499 CUAGGGCU G 'CCGGGGG 2159 GCACCCGG GGCTAGCTACAACGA ACCCCTAG 4484 4590 UGCCCGGG G 'UGCCACCC 2160 GGGTGGCA GGCTAGCTACAACGA ACCCGGCAC 4487 4590 UGCCAGCG G 'CACCCU 2160 GGGTGGCA GGCTAGCTACAACGA ACCCGGCAC 4487 4590 CGGGUGCC A 'CCCUGGCU 2162 AGCCAGGG GGCTAGCTACAACGA ACCCGGCAC 4488 4590 CGGGUGCC A 'CCCUGCU 2162 AGCCAGGG GGCTAGCTACAACGA CCGGGCAC 4489 4591 CGCCCCU G CUCCUUCC 2163 GGAAGGAG GGCTAGCTACAACGA GGAGGGAG 4499 4592 CUCCUUCCA C ACCCUGGCU 2162 AGCCAGGG GGCTAGCTACAACGA GGAGGGAG 4491 4594 CUCCUUCCA C ACCCGUGCU 2164 GCACGGTG GGCTAGCTACAACGA GGAAGGAG 4491 4594 CUCCUUCCA C ACCCGUGCU 2166 GACCAGCG GGCTAGCTACAACGA GGAAGGAG 4491 4594 CUCCUUCCA C ACCCGUGCU 2166 GACCAGCA GGCTAGCTACAACGA GGTGTAGGA 4491 4595 CCACACAC G CUGCUGCU 2166 GACCAGCA GGCTAGCTACAACGA ACCGGTGG 4499 4593 UCCACACC G UGCCUGC 2169 GGCAGCAG GGCTAGCTACAACGA ACCGAGCG 4499 4593 UCCACACAC G UGCCUGCC 2169 GGCAGCAG GGCTAGCTACAACGA ACCGAGCG 4499 4593 UCCACACC G UGCCUGC 2169 GGCAGCAG GGCTAGCTACAACGA ACCGAGCG 4499 4593 UCCACGCUG G UCACCUGC 2169 GCGCAGCA GGCTAGCTACAACGA ACCGAGCA 4499 4594 UGCUGCU G UCACCUGC 2169 GCGCAGCA GGCTAGCTACAACGA ACCGACGA 4499 4595 QGCUGGA WA UGCCUGC 2169 GCGCAGGG GGCTAGCTACAACGA ACCGACGA 4499 4595 QGCGGGG GCCAGGAG 2170 CCAGGCAG GGCTAGCTACAACGA ACCGACGA 4499 4596 UCCGGGGG C UCACGUGC 2170 CCAGCAG GGCTAGCTACAACGA ACCGACGA 4499 4591 UCCUGGGG G CUCAGAUC 2170 GCCCCAG GGCTAGCTACAACGA ACCGACGA 4499 4592 AUCCUGGA C CUCAGGAG 2171 GCCCCAG GGCTAGCTACAACGA ACCGACGA 4499 4594 UCCUGGGA C CUCAGGAG 2170 CCAGCAG GGCTAGCTACAACGA ACCGACGA 4499 4595 QGCGGGG G CUCAGAGC 2170 CCAGCAG GGCTAGCTACAACGA ACCGACGA 4499 4596 UCCAGGGG G CUCAGAGG C CCAGGAG C CCACG	4453	AGUGACCA G CUUCCCCA	2152	TGGGGAAG GGCTAGCTACAACGA TGGTCACT	4479
4465   CCCCAUCG A JUAGACUUC   2154   GAAGTCTA GGCTAGCTTACAACGA CGATTGGG   4481   4469   AUCCCGAG G CUCUCUAG   2155   GCTCCTGG GGCTAGCTTACAACGA CTATTGAT   4482   4486   GGCCAGGA G CCCUCUAG   2157   CTAGAGGG GGCTAGCTTACAACGA CTCTGGCC   4484   4496   CCCUCUAGG G CUCCCUAG   2157   CTAGAGGG GGCTAGCTTACAACGA TCCTGGCC   4484   4499   CUAGGGGG G CUGCCGGG GJ56   CCGCGGGG GGCTAGCTTACAACGA CCTAGAGGA   4485   4499   CUAGGGGG G UGCCAGCC   2159   GCACCGGG GGCTAGCTTACAACGA ACCCGCAGC   4486   4499   CUAGGGGG G CCCACCCC   2160   GGGTGGCA GGCTAGCTTACAACGA ACCCGGCAC   4487   4506   UGCCGGGG G CCCACCCC   2160   GGGTGGCA GGCTAGCTTACAACGA ACCCGGCAC   4488   4509   CGGGUGGC G UGCCACCC   2161   CAGGGTGG GGCTAGCTTACAACGA ACCCGGCAC   4489   4509   CGGGUGGC A CCCUGGCC   2162   AGCCAGGG GGCTAGCTTACAACGA ACCCGGCAC   4489   4509   CGGGUGGC A CCCUGGUC   2162   AGCCAGGG GGCTAGCTTACAACGA ACCGGGCAC   4489   4515   CCCCCCUG G CUCCUUCC   2163   GGAAGGGA GGCTAGCTTACAACGA GGCACCCG   4489   4524   CUCCUUCC A CACCGUGC   2164   GCACGGTG GGCTAGCTTACAACGA GGAAGGGA   4491   4526   CCUCCCUCC A CCCUGGCUC   2165   CAGCACGG GGCTAGCTTACAACGA GGAAGGGA   4491   4524   CUCCUUCC A CACCGUGCU   2165   CAGCACGG GGCTAGCTTACAACGA GGAAGGGA   4492   4529   UCCACACC G GCUGGUC   2166   GACCAGCA GGCTAGCTTACAACGA GGTAGGGA   4493   4531   CACACCGU G CUGCUGCU   2166   GACCAGCA GGCTAGCTACAACGA ACCGGCAC   4495   4538   UCCUGGUG G UCACUGCC   2168   GGCAGCA GGCTAGCTACAACGA ACCGACCA   4495   4538   UCCUGGUG G UCACUGCC   2168   GGCAGCA GGCTAGCTACAACGA ACCGACCA   4495   4538   UCCUGGUG G UCACUGCC   2169   GCAGGGGG GGCTAGCTACAACGA ACCGACCA   4495   4541   UGGUCACU G CUGCUGG   2170   CCAGCAG GGCTAGCTACAACGA ACCGACCA   4495   4541   UGGUCACU G CUGCUGG   2170   CCAGCAG GGCTAGCTACAACGA ACCGACCA   4495   4552   UGCUGGGG G CUCAGAUC   2172   ACCCCGC GGCTAGCTACAACGA ACCGACCA   4495   4554   UCCUGGGG G CUCAGAUC   2173   GCACCGG GGCTAGCTACAACGA ACCGACCA   4495   4554   UCCUGGGG G CUCAGAUC   2174   CACCGCG GGCTAGCTACAACGA ACCGACCA   4550   4556   UGCAGGGG G CUCAGAUC   2174   CACCGCG GGCTAGCTA	4461	GCUUCCCC A UCGAUAGA	2153	TCTATCGA GGCTAGCTACAACGA GGGGAAGC	
4469   AUCGANAG A CUUCCCCA   2155   TCGGGAAG GGCTAGCTACAACGA CTATCGAT   4482   4486   GGCCAGGAG C CCCUCUAG   2156   GCTCCTGG GGCTAGCTACAACGA CTCGGGAA   4483   4486   GGCCAGGAG C CCCUCUAG   2157   CTAGAGG GGCTAGCTACAACGA CTCTGGCC   4484   4496   CCUCUAGG G CUGCCGGG   2158   CCCGGCAG GGCTAGCTACAACGA CCTAGAGG   4485   4496   CCUGCAGG G CUGCCGGG   2158   CCCGGCAG GGCTAGCTACAACGA ACCCTAG   4485   4496   CCUGCAGGC G CCCGGCG C   2160   GGGTGGCTACAACGA ACCGACCTAG   4486	4465	CCCCAUCG A UAGACUUC	2154	GAAGTCTA GGCTAGCTACAACGA CGATGGGG	
4479 UUCCCGAG G CCAGGACC 4481 4486 GCCAGGAG C CCCUCUAG 4486 GCCAGGAG C CCCCCUAG 4486 GCCAGGAG C CCCCCUAG 4486 GCCAGGAG C CCCCCCC 4487 CCCCCCCAG 4489 CUAGGGCC G CCGCGCCC 2159 GCCACCCG 4487 CUAGGGCC G CCGCGCCC 2159 GCCACCGG GCTAGCTACAACGA ACCCTAG 4486 4504 GCCCCGC G UCCCCCC 2160 GGGTGGCA GGCTAGCTACAACGA ACCCGCAG 4487 4506 UGCCGGG G CACCCCC 2160 GGGTGGCA GGCTAGCTACAACGA ACCCGGCAG 4488 4507 CGGGCGG G CACCCCC 2160 GGGTGGCA GGCTAGCTACAACGA ACCCGGCAG 4488 4508 UGCCGGCG G CUCCUCC 2161 CAGGGTGG GGCTAGCTACAACGA ACCCGGCAG 4488 4509 CGGGUGCC A CCCCUGCU 2162 AGCCAGGG GGCTAGCTACAACGA ACCCGGCAG 4489 4515 CCCCCCUG G CUCCUCC 2163 GGAAGGA GGCTAGCTACAACGA ACCCGGCAG 4489 4524 CUCCUUCC A CACCGUGC 2164 GCACGGG GGCTAGCTACAACGA CGGGTGG 4490 4524 CUCCUUCC A CACCGUGC 2164 GCACGAGG GGCTAGCTACAACGA CGGAGGG 4491 4526 CCUUCCACA C GUCCUGCC 2166 GCACCAGC GGCTAGCTACAACGA GTGGAAGG 4491 4527 UCCCACACC G UCCUUCCC 2166 GCACGACG GGCTAGCTACAACGA GTGGAAGG 4492 4531 CACACCGU G UCCUGCUC 2166 GCACGACG GGCTAGCTACAACGA GCGACGG 4493 4531 CACACCGU G UCCUGCC 2167 GTGACCAG GGCTAGCTACAACGA ACGGTTG 4493 4538 UGCCGGCC C CUGCUGG 2167 GTGACCAG GGCTAGCTACAACGA ACGGCGG 4495 4538 UGCCGGCC C CUGCUGG 2170 CCAGCAGG GGCTAGCTACAACGA ACGGCGG 4495 4545 CACUGCCUC G CUGCUGG 2171 GCCCCCAG GGCTAGCTACAACGA ACGCACGG 4495 4551 UGGUGGUC A CUGCUGCC 2169 GCAGGACA GGCTAGCTACAACGA ACGCACGG 4496 4552 UGCCGGCC G CUGCAGGC 2171 GCCCCCAG GGCTAGCTACAACGA ACGCACGCA 4497 4554 CUGCGGCC G CUGCAGGC 2171 GCCCCCAG GGCTAGCTACAACGA ACGCACGCA 4496 4551 CUGCGGGC G UCAGAUGC 2172 ACCTCCAG GGCTAGCTACAACGA ACGCACGCA 4497 4552 UGCCAGGC G CUCCAGU 2172 ACCTCCAG GGCTAGCTACAACGA ACGCACGCA 4496 4551 CACCCCCC GCGGGGC 2171 GCCCCCAG GGCTACCTACAACGA CCCCCCAG 4501 4556 CGUCGAGA UGCAGGGC 2171 GCCCCCAG GGCTACCTACAACGA CCCCCAGCA 4596 4557 GACCUCUG GUCAGAGC 2177 GCCCCAG GGCTACCTACAACGA CCCCCCAGCA 4597 4556 CUGCAGAU A UCCAGGGC 2176 CACGGGGGG GCTAGCTACAACGA CCCCCCAGCA 4501 4568 UGCAGGGC G UGACGAGC 2177 GCCCCAG GGCTACCTACAACGA CCCCCCCAGCA 4501 4566 UGCCCCC GUGGGGCC 2177 GCCCCAG GGCTACCTACAACGA CCCCCCCCAC 4501 4560 UGCCCCCCC	4469	AUCGAUAG A CUUCCCGA	2155	TCGGGAAG GGCTAGCTACAACGA CTATCGAT	<del></del>
4496 GCCCAGGA G CCCUCUAG 4198 CCCCCAGA G CCCCCUAG 4496 CCCUCUAGG G CIGGCCGG 4188 CCCGGCAG GGCTAGCTACAACGA TCCTGGGC 4497 CUAGGGCU G CCGGGUGC 2159 GCACCCGG GGCTAGCTACAACGA CCCTAGAGG 4498 CUGCCGG G UGCCACCC 2160 GGGTGGCA GGCTAGCTACAACGA CCCGCAGC 4488 4504 GCUGCCGG G UGCCACCC 2161 CAGGGTGG GGCTAGCTACAACGA CCCGCCA 4488 4509 CGGGUGC A CCCCUGGCU 2161 CAGGGTGG GGCTAGCTACAACGA CCCGCCA 4488 4509 CGGGUGC A CCCCUGGCU 2161 CAGGGTGG GGCTAGCTACAACGA CCCGCCA 4488 4509 CGGGUGC A CCCCUGGCU 2162 AGCCAGGG GGCTAGCTACAACGA CCCCGCA 4489 4515 CACCCUG G CUCCUUCC 2163 GGAAGGAG GGCTAGCTACAACGA CAGGGTGG 4490 4524 CUCCUUCC A CACCGUGC 2164 GCACGGTG GGCTAGCTACAACGA CAGGGTGG 4490 4526 CCUUCCAC A CCGUGCU 2165 CAGCACGG GGCTAGCTACAACGA GGCACGG 4491 4527 UCCACACC G UGCUGGC 2166 GACCAGGG GGCTAGCTACAACGA GGGTTGGA 4491 4528 UCCACACC G UGCUGGC 2168 GGCAGGTG GGCTAGCTACAACGA GGTGGAGG 4492 4529 UCCACACC G UGCUGGC 2168 GGCAGGTG GGCTAGCTACAACGA AGGGTTGG 4493 4531 CACACCGU G CUGGUCAC 2169 GCAGCAGG GGCTAGCTACAACGA AGGGTTGG 4495 4531 UGCUGGUC A CUGCCCC 2168 GGCAGGTA GGCTAGCTACAACGA AGGACGG 4495 4531 UGCUGGUC G CCUGCUGG 2169 GCAGGCAG GGCTAGCTACAACGA AGGACGAC 4496 4541 UGGUCACU G CCUGCUGG 2170 CCACCACG GGCTAGCTACAACGA AGGACGCA 4497 4545 CACUGCUC C CUGGGGGC 2171 GCCCCCAG GGCTAGCTACAACGA AGGACGCA 4497 4545 CACUGCUC C CUGCUGG 2170 CCACCACG GGCTAGCTACAACGA AGGACGCA 4497 4545 CACUGCUC C CUGCUGG 2171 GCCCCCAG GGCTAGCTACAACGA AGGACGCA 4497 4554 CUGGGGGC UCAGAUC 2172 ATCTAGAG GGCTAGCTACAACGA AGCACGCA 4497 4555 CACUGCUC C UCGAGAUC 2173 GCACCGG GGCTAGCTACAACGA ACCACGACA 4497 4556 CUGCAGAUC 2174 CACCTGCC 2175 GCCCCCAG GGCTAGCTACAACGA ACCACGCA 4497 4557 GACCUUC 4570 CUCCACACC 4501 4571 CUUCACACAC CUCCUC 4571 CACCACGG GCTAGCTACAACGA ACCACGCA 4501 4573 GUGACCCU G UCCAGAUC 2177 CACCAGGG GCTAGCTACAACGA ACCACGCA 4501 4568 UGCAGGAG UACCCUC 2176 CACCAGGG GCTAGCTACAACGA ACCACGCA 4501 4575 GACCUUCAC 4575 GCCCCCAGCGCC 4575 GCCCCAGCGCC 4575 GACCCUCC 4575 GCCCCAGCGCC 4576 GCCCCACCACACACACACACACACACACACACACACACA	4479	UUCCCGAG G CCAGGAGC	2156	GCTCCTGG GGCTAGCTACAACGA CTCGGGAA	
4496   CCUCUAGG G CUGCCAGG   2158   CCCGCAG GCTTAGCTACAACGA ACTAGAGG   4495   4499   CUAGGGCU G CCCGGGGC   2159   GCACCCCG GGCTAGCTACAACGA ACCCCTAG   4486   4504   4504   4505   GCUGCCGG G UGCCACCC   2161   CAGGTTGC AGCTACAACGA ACCCGGCA   4487   4506   UGCCGGGU G CCACCCU   2162   AGCCAGGG GCTTAGCTACAACGA ACCCGGCA   4488   4509   CCGGGUCC A CCCUGCU   2162   AGCCAGGG GCTTAGCTACAACGA ACCCGGCA   4488   4509   CCGGGUCC G CUCCUUC   2163   GGAAGGAG GCTTAGCTACAACGA ACCCGGCA   4489   4515   CCACCCUG G CUCCUUC   2163   GGAAGGAG GCTTAGCTACAACGA CAGGGTGG   4490   4524   CUCCUUCC A CACCGUGC   2165   CAGCACGG GCTTAGCTACAACGA GGAAGGAG   4491   4526   CCUUCCAC A CCGUGCUC   2165   CAGCACGG GGCTTAGCTACAACGA GGAAGGAG   4491   4529   UCCACACC G UGCUGCUC   2166   GACCAGCA GGCTTAGCTACAACGA GTGTAGAA   4494   4529   UCCACACC G UGCUGGUC   2166   GACCAGCA GGCTTAGCTACAACGA GTGTGGA   4494   4531   CACACCGU G CUACUGCC   2168   GGCAGTGA GGCTTAGCTACAACGA AGGGTTG   4494   4531   CACACCGU G CUACUGCC   2168   GGCAGTGA GGCTTAGCTACAACGA AGGGTTG   4494   4531   UGCUCACU G CUGCCUCC   2168   GGCAGTGA GGCTTAGCTACAACGA CAGCACGA   4495   4541   UGGUCACU G CUGCCUCC   2169   GCAGGCAG GGCTTAGCTACAACGA AGGACGA   4495   4541   UGGUCACU G CUGGGGGC   2170   CCAGCAGG GGCTTAGCTACAACGA AGGACGA   4495   4545   CACUGCCU G CUGGGGGC   2171   GCCCCCCAG GGCTTAGCTACAACGA AGGACGA   4496   4552   UGCUGGGG G CUCAAGU   2172   ATCTTACA GGCTTAGCTACAACGA AGGACGA   4496   4554   CACUGCCU G UGCAGGG   2174   CACCTGCA GGCTTAGCTACAACGA CTGCCCCCAG   4499   4554   UGCAGGU G UCAAGUG   2175   GTCACCTG GGCTTAGCTACAACGA CTGCCCCAG   4500   4556   UGCAGGAG G UCAAGAU   2172   ATCTTACA GGCTTAGCTACAACGA CTGCCCCAG   4500   4556   UGCAGGAG G UCAAGAG   2175   GTCACCTG GGCTTAGCTACAACGA CTGCCCCAG   4500   4556   UGCAGGAG G UCAAGAG   2176   CACGGGAG GCTTAGCTACAACGA CTGCCCCAG   4500   4556   UGCAGGAG G UCAAGAG   2176   CACGGGAG GGCTTAGCTACAACGA CTGCACA   4500   4556   UGCAGGAG G UAUCUCUG   2180   CACGAGGAG G CTTAGCTACAACGA CACGGCC   4500   4556   UGCAGGAG G UAUCUCUG   2180   CACGAGGAG G CTTAGCTAC	4486	GGCCAGGA G CCCUCUAG		CTAGAGGG GGCTAGCTACAACGA TCCTGGCC	
4499         CUAGGGCU G CUGGGGUGC         2159         GCACCCGG G GCTTAGCTACACGA AGCCTAG         4486           4504         GUUGCGG G UGCCACC         2160         GGGTGGCA GCTTACTACACGA CCGGCAGC         4487           4506         UGCCCGGU G CCACCCU         2161         CAGGTTGG GGCTTACTACACGA CCGGCAC         4488           4509         CGGGUGC A CCCCUGGU         2162         AGCAGGG GGCTTACTACACGA GGCACCCG         4489           4515         CACCCUG G CUCCUUCC         2163         GGAAGGAG GGCTTACTACACGA GAGAGGA         4499           4524         CUCCUUCC A CACCGUG         2164         GCACGTG GGCTAGCTACACGA CAGAGGAG         4491           4526         CUUCCAC A CCGUGGUC         2166         GACCAGGG GGCTAGCTACACGA AGGAGGAG         4492           4529         UCCACACC G UGCUGGUC         2166         GACCAGGA GGCTAGCTACACGA AGGATGGA         4493           4531         CACACGGU G CUGGUCC         2168         GGCAGGA GGCTAGCTACACGA AGGACGG         4493           4533         UGCUGGUC A CUGCCCC         2168         GCAGGCA GGCTAGCTACACGA AGCACAGA         4496           4531         CACACGUG G CUGGGGC         2170         CCCACAGGGGCTAGCTACAACGA AGGACACA         4496           45451         UGCUGGGG C CUGAGAU         2171         GCCCCCAG GGCTAGCTACAACGA AGGACACA         4499     <	4496	CCUCUAGG G CUGCCGGG		CCCGGCAG GGCTAGCTACAACGA CCTAGAGG	
4504   GCUGCOGG G 'UGCCACCC'   2161   CAGGTGGC AGCTAGCTACAACGA CCCGGCAGC   4487   4506   UGCCGGGU G CCACCCUG   2161   CAGGTGGG GGCTAGCTACAACGA ACCCGGCA   4488   4509   CGGGUGCC A CCCUUGCC   2163   GGAAGGAG GGCTAGCTACAACGA ACGCACCG   4489   4515   CCACCCUG G CUCCUUCC   2163   GGAAGGAG GGCTAGCTACAACGA CGCACCG   4489   4524   CUCCUUCC A CACCGUGC   2164   GCACGGTG GGCTAGCTACAACGA GGAAGGAG   4491   4524   CUCCUUCC A CACCGUGC   2165   CAGCACGG GGCTAGCTACAACGA GGAAGGAG   4491   4526   CCCUUCCAC A CACCGUGC   2165   CAGCACGG GGCTAGCTACAACGA GTGGAAGG   4492   4526   CCCUUCCAC C UGCUCCAC   2166   GACCAGCA GGCTAGCTACAACGA GTGGAAGG   4492   4529   UCCACACC G UGCUGCC   2166   GACCAGCA GGCTAGCTACAACGA GGTGTGGA   4493   4531   CACACCGU G CUACUGCC   2168   GGCAGGCA GGCTAGCTACAACGA CAGGTGTG   4494   4535   CCCUGCUC C   2168   GGCAGGCA GGCTAGCTACAACGA CAGGACGA   4495   4531   CACACCGU G CUACUGCC   2169   GCAGGCAG GGCTAGCTACAACGA CAGCACGA   4496   4541   UGGUCACU G CUUGCUGG   2170   CCAGCAGG GGCTAGCTACAACGA ACGACAGCA   4497   4545   CACUUGCCU G CUUGCUGG   2170   CCAGCAGG GGCTAGCTACAACGA ACGACAGCA   4497   4545   CACUUGCCU G CUUGCUGG   2171   GCCCCCAG GGCTAGCTACAACGA ACGCACGA   4499   4552   UGCUGAGG G CUUCAGAU   2172   ATCTGACG GGCTAGCTACAACGA ACGCAGCA   4499   4554   CUUCGUGGG G CUUCAGAU   2172   ATCTGACG GGCTAGCTACAACGA ACGCACGA   4499   4554   CUUCGUGG G CUUCAGAU   2172   ATCTGACG GGCTAGCTACAACGA ACCCCAGCA   4499   4554   CUUCUGG G CUUCAGAU   2172   ACCTTGCA GGCTAGCTACAACGA CTCACCAC   4500   4559   GGCUCAGA	4499	CUAGGGCU G CCGGGUGC		GCACCCGG GGCTAGCTACAACGA AGCCCTAG	<del> </del>
4506 UGCCGGGU G CCACCCUG 2161 CAGGGTGG GGCTAGCTACAACGA ACCGGCA 4488 4509 CGGGUCCC A **CCCUGGCU 2162 AGCCAGG GGCTAGCTACAACGA GGCACCCG 4489 4515 CCACCCUG G CUCCUUCC 1263 GGAGGAG GGCTAGCTACAACGA GGCACCCG 4489 4524 CUCCUUCC A CACCGUGC 2164 GGAGGAG GGCTAGCTACAACGA GGAGGAG 4491 4524 CUCCUUCC A CACCGUGC 2165 CAGCACGG GGCTAGCTACAACGA GGAAGGAG 4491 4529 UCCACACC G UGCUGGUC 2166 GACCAGCA GGCTAGCTACAACGA GGAGGAG 4491 4529 UCCACACC G UGCUGGUC 2166 GACCAGCA GGCTAGCTACAACGA GGTAGGTAGAGA 4493 4531 CACACCGU G CUGGUCA 2166 GACCAGCA GGCTAGCTACAACGA ACGGTTGGA 4493 4531 CACACCGU G CUGGUCA 2167 GTGACCAG GGCTAGCTACAACGA ACGGTTGG 4494 4535 CCGUGCUG G UCACUGCC 2169 GCAGGCAG GGCTAGCTACAACGA ACGGCCGC 4495 4538 UGCUGGUC A CUGCUGC 2169 GCAGGCAG GGCTAGCTACAACGA ACGCACGA 4495 4541 UGGUCACU G CCUGCUGG 2170 CCACGCAG GGCTAGCTACAACGA AGCCACGA 4495 4541 UGGUCACU G CCUGCUGG 2170 CCACGCAG GGCTAGCTACAACGA AGCCAGCA 4495 4541 UGGUCACU G CCUGGGGG 2171 GCCCCCAG GGCTAGCTACAACGA AGCCAGCA 4497 4545 CACUGCCU G CUGGGGGC 2171 GCCCCCAG GGCTAGCTACAACGA AGCCAGCA 4498 4554 CUGGGGGG GUCAGAAU 2172 ATCTGACG GGCTAGCTACAACGA AGCCAGCA 4499 4554 CUGGGGGG GUCAGAUC 2173 GCCCCCAG GGCTAGCTACAACGA CCCCCAGCA 4499 4554 CUGGGGGG GUCAGAUC 2173 GCCTCTGA GGCTAGCTACAACGA CCCCCAGCA 4499 4554 CUGGGGGG GUCAGAUC 2174 CACCTGCA GGCTAGCTACAACGA CCCCCAGCA 4499 4554 CUGAGAGG A UGCAGGUG 2174 CACCTGCA GGCTAGCTACAACGA CCCCCAG 4500 4556 AGAUGCAG U GCAAGGUG 2174 CACCTGCA GGCTAGCTACAACGA CCCCCAG 4500 4561 CGUCAGAU G CAGGUGAC 2176 CACGAGG GCTAGCTACAACGA CTGACGC 4501 4561 CGUCAGAU G CAGGUGAC 2176 CACGAGG GCTAGCTACAACGA ACCTCCTA 4503 4561 CGUCAGAU G CAGGAGAC 2176 CACGAGG GCTAGCTACAACGA ACCTCCTA 4504 4561 CGUCAGAU G CAGGAGG 2176 CACAGGG GCTAGCTACAACGA ACCTCCTA 4504 4561 CGUCAGAU G CAGGAGG 2176 CACAGGG GCTAGCTACAACGA ACCTCCTA 4504 4561 UGCAGGG G UGCACCUCUUG 2180 CAGGAGG GCTAGCTACAACGA ACCTGCA 4504 4561 UGCAGGG G UGCACGAGG CAGGGC 4518 TCCCCCG GCTAGCTACAACGA CACGAGGC 4504 4561 UGCAGGG G UGCACGAG GCCTAGCTACAACGA CCCCCAG 4504 4504 CCCCCGGG G CAGGGCC G CAGGGCC 2184 CCCCCAG GGCTAGCTACAACGA CCCACGAG 4514 46	4504	GCUGCCGG G UGCCACCC			
4599   CGGGUGCC A CCCUGGCU   2162   AGCCAGGG GGCTAGCTACAACGA GGCACCCG   4489   4515   CCACCCUG G CUCCUUCC   2163   GGAAGGAG GGCTAGCTACAACGA GGAAGGAG   4490   4524   CUCCUUCCA C A CACCGUGC   2164   GCACGGGT GGCTAGCTACAACGA GGAAGGAG   4491   4526   CCUUCCAC A CCGUGCUG   2165   CAGCACGG GGCTAGCTACAACGA GGAAGGAG   4491   4526   CCUUCCAC A CCGUGCUG   2165   CAGCACGG GGCTAGCTACAACGA GGAAGGAG   4492   4529   UCCACACC G UGCUGGUC   2166   GACCAGCA GGCTAGCTACAACGA GGTGTGGA   4493   4531   CACACCGU G CUGGUCAC   2167   GTGACCAG GGCTAGCTACAACGA ACGGTTGG   4494   4453   CACACCGU G UCACUGCC   2168   GGCAGGGA GGCTAGCTACAACGA ACGGTTG   4494   4454   UGGUCACU G CUGCUGC   2169   GCAGGCAG GGCTAGCTACAACGA AGCGACCA   4495   4541   UGGUCACU G CUGCUGC   2170   CCAGCAGG GGCTAGCTACAACGA AGTGACCA   4495   4542   UGCUGGGG G CUCAGAU   2172   ATCTGACG GGCTAGCTACAACGA AGCACCA   4497   4554   CUGCGGGG G UCAGAU   2172   ATCTGACG GGCTAGCTACAACGA AGCACCA   4497   4554   CUGGGGGG G UCAGAUC   2173   GCACCCAG GGCTAGCTACAACGA CCCCCAGC   4499   4554   CUGGGGG G UCAGAUC   2173   GCACCCAG GGCTAGCTACAACGA CCCCCAGC   4499   4554   CUGGGGG G UCAGAUC   2174   CACCTGCA GGCTAGCTACAACGA CCCCCAGC   4500   4561   CGUCCAGA G UGACCCU   2176   CAGGGTCA GGCTAGCTACAACGA CTCCAGCC   4501   4568   UGCAGGUG A UGCAGGUG   2176   CAGGGTCA GGCTAGCTACAACGA CTCCAGCC   4501   4568   UGCAGGUG A CCCUCUUG   2176   CAGGGTCA GGCTAGCTACAACGA CTCCAGCC   4502   4568   UGCAGGUG A CCCUCUUG   2176   CAGGGTCA GGCTAGCTACAACGA CTCCAGCC   4504   4573   GUGACCCU   GUCAGGAG   2178   CTCCTCCA GGCTAGCTACAACGA CTCCTCCA   4504   4559   GCAGGAGG A CCCUCUUG   2180   CAGAGATA GGCTAGCTACAACGA CTCCTCCA   4504   4559   ACCUCUUG   CAGGAGGU   2179   ACCTCCTG GGCTAGCTACAACGA CACCTGCA   4504   4559   ACCUCUUG   CAGGAGGU   2179   ACCTCCTG GGCTAGCTACAACGA CACCTCCTC   4507   4559   ACCUCUUG G CUCUUGG   2180   CAGAGATA GGCTAGCTACAACGA CACCTGCA   4504   4559   ACCUCUUG G CUCUUGG   2181   TCCAGGAG GGCTAGCTACAACGA CACCTCCCA   4506   4550   4550   4550   CAGGACCU G CUCUUGG   2181   CCCCCAGG GGCTAGCTACAACGA CACGAG	4506	UGCCGGGU G CCACCCUG			
4515	4509	CGGGUGCC A CCCUGGCU			<del> </del>
4524         CUCCUUCCA A CACCGUGC         2164         GCACGGTG GGCTAGCTACAACGA GGAAGGAG         4491           4526         CCUUCCAC A CCGUGCUG         2165         CAGCAGGG GGCTAGCTACAACGA GTGGAAAGG         4492           4529         UCCACACCC G UGCUGGUC         2166         GACCAGGA GGCTAGCTACAACGA GTGGAAAGG         4493           4531         CACACCGU G CUGGUCAC         2167         GTGACCAG GGCTAGCTACAACGA ACGGTGTG         4494           4538         UGCUGGU G CUACUGC         2168         GGCAGTGA GGCTAGCTACAACGA ACGCACGA         4495           4538         UGCUGGU A CUGCCUGC         2169         GCAGGCAG GGCTAGCTACAACGA CAGCACGA         4496           4538         UGCUGGU G CUGCUGC         2169         GCAGCAG GGCTAGCTACAACGA CAGCACGA         4496           4538         UGCUGGG G CUGCGUGC         2170         CCAGCAGG GGCTAGCTACAACGA AGGACCAGCA         4496           45451         UGCUGGGG G CUCAGAU         2172         ACTCTGA GGCTACAACGA ACCCAGCA         4499           4554         CUGGGGC G UCAGAUGC         2173         GCATCTGA GGCTACAACGA CCCCAGCA         4499           4559         GGCUCAG A UGCAGGGG         2174         CACCTGCA GGCTACAACGA CTCCACAGCA         4500           4551         CSUCAGAGA C UGACCUG         2175         GCACAGCAG GGCTACCTACAACGA CCCCTGCA         4	4515	CCACCCUG G CUCCUUCC			
4526 CCUUCCAC A CCGUGCUG 2165 CAGCACGG GGCTAGCTACAACGA GTGGAAGG 4492 4529 UCCACACC G UGCUGGUC 2166 GACCAGCA GGCTAGCTACAACGA GGTGTGGA 4493 4531 CACACCGU G CUGGUCAC 2167 GTGACCAG GGCTAGCTACAACGA ACGTTGGA 4494 4535 CCGUGCUG G UCACUGCC 2168 GGCAGTAG GGCTAGCTACAACGA ACGTCGGA 4494 4538 UGCUGGUC A CUGCCUGC 2169 GCAGGCAG GGCTAGCTACAACGA CAGCACGG 4495 4538 UGCUCACU G CUUGCUGC 2169 GCAGGCAG GGCTAGCTACAACGA ACGCACGG 4495 4541 UGGUCACU G CCUGCUGG 2170 CCAGCAGG GGCTAGCTACAACGA AGGACCA 4496 4545 CACUGCCU G CUGGGGGC 2171 GCCCCAG GGCTAGCTACAACGA AGGACCA 4497 4545 CACUGCCU G CUGGGGGC 2172 GCCCCAG GGCTAGCTACAACGA AGGACCA 4497 4552 UGCUGGGG G CGUCAGAU 2172 ATCTGACG GGCTAGCTACAACGA AGGACCA 4499 4554 CUGGGGGC GUCAGAU 2172 ATCTGACG GGCTAGCTACAACGA AGGACCA 4499 4555 GGCGUCAG A UGCAGGUG 2174 CACCTGCA GGCTAGCTACAACGA CCCCAGCA 4499 4554 CUGGGGGC GUCAGAUGC 2173 GCATCTGA GGCTAGCTACAACGA CCCCCAGCA 4590 4559 GGCGUCAG A UGCAGGUG 2174 CACCTGCA GGCTAGCTACAACGA CTCACACGA 4590 4561 CGUCAGAU G CAGGUGAC 2175 GTCACCTG GGCTAGCTACAACGA CTCACACGA 4590 4568 UGCAAGGUG A CCCUGUGC 2176 CAGGGTCA GGCTAGCTACAACGA CTCACACGA 4501 4573 GUGACCCU G UGCAGGAG 2178 CTCCTGCA GGCTAGCTACAACGA CACCTGCA 4504 4573 GUGACCCU G UGCAGGAG 2178 CTCCTGCA GGCTAGCTACAACGA CACCTGCA 4504 4582 UGCAGGAG G UAUUCUG 2180 CAGGAGGT GGCTAGCTACAACGA ACGGTCACAACGA ACGGTCACACGA CACCTGCA 4506 4582 UGCAGGAG G UAUUCUG 2180 CAGGAGGT GGCTAGCTACAACGA ACGGTCACACGA ACGGACACGA ACGACACGA ACCCCCGACGA ACGACC					<del></del>
4529   UCCACACC G UGCUGGUC   2166   GACCAGCA GGCTACCTACAACGA GGTGTGGA   4493   4531   CACACCGU G CUGGUCAC   2167   GTGACCAG GGCTAGCTACAACGA ACGGTGTG   4494   4535   CCCUGCUG G CUGGUCAC   2168   GGCAGTGA GGCTAGCTACAACGA ACGGTGTG   4494   4538   UGCUGGUC A CUGCCUC   2169   GCAGGCAG GGCTAGCTACAACGA CACCAGCG   4495   4541   UGGUCACU G CUGGUGG   2170   CCAGCAGG GGCTAGCTACAACGA GACCAGCA   4496   4541   UGGUCACU G CUGGGGGC   2171   GCCCCCAG GGCTAGCTACAACGA AGCAAGTG   4498   4542   CACUGCCU G CUGGGGGC   2171   GCCCCCAG GGCTAGCTACAACGA AGCAAGTG   4498   4554   CUGGGGGG G GUCAGAU   2172   ATCTGACG GGCTAGCTACAACGA ACCCAGCA   4499   4554   CUGGGGGG G UCAGAU   2173   GCACTGGA GGCTAGCTACAACGA CCCCAGCA   4499   4554   CUGGGGGG G UCAGAUC   2173   GCACTGGA GGCTAGCTACAACGA CCCCAGCA   4499   4554   CUGGGGGG G UCAGAUC   2173   GCACTGGA GGCTAGCTACAACGA CCCCAGCA   4499   4554   CUGGGGGG G UCAGAUCC   2175   GTCACCTG GGCTAGCTACAACGA CTGACGC   4501   4559   GGCGUCAGA U GCAGGUGA   2175   GTCACCTG GGCTAGCTACAACGA CTGACGC   4501   4561   CGUCAGAU G CAGGUGAC   2176   CAGGGTCA GGCTAGCTACAACGA ATCTGACG   4502   4568   UGCAGGUG A CCCUGUGC   2176   CAGGGTCA GGCTAGCTACAACGA ATCTGACA   4503   4575   GACCCUG G UGCAGGAG   2178   CTCCTGCA GGCTAGCTACAACGA ACGCACTGCA   4504   4573   GUGACCUG G UGCAGGAG   2178   CTCCTGCA GGCTAGCTACAACGA ACGGTCT   4506   4575   GACCCUGU G CAGGAGGU   2179   ACCTCCTG GGCTAGCTACAACGA ACGGTCC   4506   4575   GACCCUGU G CAGGAGGU   2180   CAGAGATA GGCTAGCTACAACGA ACGGTCC   4506   4584   CAGGAGGU A UCUCUGG   2180   CAGAGATA GGCTAGCTACAACGA ACGACTCCTG   4508   4596   CUGGACCU G CCUCUUGG   2181   TCCAGAGA GGCTACCTACAACGA ACGACTCCTG   4508   4596   CUGGACCU G CCUCUUGG   2181   CCAGAGAG GGCTAGCTACAACGA ACGACCTC   4506   4596   CUGGACCU G CUCUUGG   2183   CCAGAGGG GGCTAGCTACAACGA CCAGGAGT   4509   4596   CUGGACCU G UUCAGGG   2185   CCAGGAGG GGCTAGCTACAACGA CCAGGACT   4509   4601   UCUUGGU A UUACGGGG   2185   CCCCGGAG GGCTAGCTACAACGA CCAGGCCC   4511   4602   GGGCCUG G CUGUGUGU   2188   AGGCCCG GGCTAGCTACAACGA CCAGCCCC   4516   46					
4531 CACACCGU G CUGGUCAC  2167 GTGACCAG GGCTAGCTACAACGA ACGGTGTG  4494  4535 CCGUGCUG G UCACUGCC  2168 GGCAGGA GGCTAGCTACAACGA CAGCACGG  4495  4538 UGCUGGUC A CUGCCUGC  2169 GCAGGCAG GGCTAGCTACAACGA CAGCACGCA  4496  4541 UGGUCACU G CUGGCUGC  2170 CCAGCAGG GGCTAGCTACAACGA AGGACACGA  4496  4541 UGGUCACU G CUGGGGGC  2171 GCCCCCAG GGCTAGCTACAACGA AGGACACA  4497  4545 CACUGCCU G CUGGGGGC  2171 GCCCCCAG GGCTAGCTACAACGA AGGACACA  4498  4552 UGCUGGGG G GUCAGAUU  2172 ATCTGACG GGCTAGCTACAACGA AGCACACA  4499  4554 CUGGGGG G UCAGAUGC  2173 GCATCTGA GGCTAGCTACAACGA CCCCCAGCA  4499  4555 UGCUGGGG G UCAGAUGC  2173 GCATCTGA GGCTAGCTACAACGA CCCCCAGCA  4500  4559 GGCGUCAG A UGCAGUGC  2174 CACCTGCA GGCTAGCTACAACGA CCCCCAGCA  4500  4561 CGUCAGAU G CAGGUGC  2175 GTCACCTG GGCTAGCTACAACGA CTGACACCA  4501  4565 AGAUGCAG G UGAACCCUG  2176 CAGGGGTAGGTACAACGA CTGACACCA  4502  4568 UGCAGGUG A CCCUGUGC  2177 GCACAGGG GGCTAGCTACAACGA CACCTGCA  4504  4573 GUGACCCU G UGCAGGAG  2178 CCCCCGCAG GGCTAGCTACAACGA CACCTGCA  4504  4573 GUGACCCU G UGCAGGAG  2179 ACCTCCTGC GGCTAGCTACAACGA CACCTGCA  4504  4584 CAGGAGGU A UCUCUGG  2180 CAGGAGTA GGCTAGCTACAACGA ACGGGTCA  4507  4584 CAGGAGGU A UCUCUGG  2180 CAGGAGG GGCTAGCTACAACGA ACGGGTCA  4507  4584 CAGGAGGU A UCUCUGG  2180 CAGGAGG GGCTAGCTACAACGA ACGGGTCA  4508  4592 UGCAGGAG UUCUCUG  2180 CAGGAGG GGCTAGCTACAACGA ACGGGTCA  4508  4594 CAGGAGGU A UCUCUGG  2181 TCCAGAGA GGCTAGCTACAACGA ACGGGTCA  4508  4596 CUGGACCU G CCUCUUG  2181 TCCAGAGAG GGCTAGCTACAACGA ACGACGGT  4508  4596 CUGGACCU G CUCUUG  2181 CCAGAGGG GGCTAGCTACAACGA ACCTCCTGCA  4508  4600 UGUUGGU A UUCUGGA  2181 CCCCCTAA GGCTAGCTACAACGA ACCTCCTGCA  4500  4500 UUUGGUC A UUACGGG  2185 CCCCCTAA GGCTAGCTACAACGA ACCTCCTGA  4510  4601 UGUUGGU A UUACGGG  2186 CAGCCCG GCTAGCTACAACGA CCCCCAAGAAT  4512  4610 UGGCAUU A CGGGGCU  2188 AGGCCCG GCTAGCTACAACGA CCCCCCC  4515  4610 UGGCAUU A CGGGGCU  2188 AGGCCCG GCTAGCTACAACGA CCCCCCC  4516  4620 GGGCUGG G CUGGGCU  2189 ATACCAG GGCTAGCTACAACGA CCCAGCCCC  4516  4620 GGGCUGG G CUGGGCU  2190 AGCCCCG GGCTAGCTACAACGA	·				
4535 CCGUGCUG G UCACUGCC 2168 GGCAGTGA GGCTAGCTACAACGA CAGCACGG 4495 4538 UGCUGGUC A CUGCCUGC 2169 GCAGGCAG GGCTAGCTACAACGA GACCAGCA 4496 4541 UGGUCACU G CCUGCUGG 2170 CCAGCAGG GGCTAGCTACAACGA AGTGACCA 4497 4545 CACUGCCU G CUGGGGGC 2171 GCCCCCAG GGCTAGCTACAACGA AGTGACCA 4497 4545 CACUGCCU G CUGGGGGC 2171 GCCCCCAG GGCTAGCTACAACGA AGTGACCA 4497 4552 UGCUGGGG C GUCAGAU 2172 ATCTGACG GGCTAGCTACAACGA AGTGACCA 4499 4554 CUGGGGGC G UCAGAUGC 2173 GCATCTGA GGCTAGCTACAACGA CCCCAGCA 4499 4554 CUGGGGGC G UCAGAUGC 2173 GCATCTGA GGCTAGCTACAACGA CCCCCAG 4500 4559 GGCGUCAG A UGCAGGUG 2174 CACCTGCA GGCTAGCTACAACGA CTGACGCC 4501 4561 CGUCAGAU G CAGGUGAC 2175 GTCACCTG GGCTAGCTACAACGA CTGACGCC 4501 4568 UGCAGGUG G UGACCCUG 2176 CAGGGTCA GGCTAGCTACAACGA CTGCACCC 4568 UGCAGGUG A UCCUGUGC 2177 GCACAGGG GGCTAGCTACAACGA CTGCACTC 4503 4573 GUGACCCU G UGCAGGAG 2178 CTCCTGCA GGCTAGCTACAACGA ACCGGCTCA 4504 4573 GUGACCCU G UGCAGGAG 2178 CTCCTGCA GGCTAGCTACAACGA ACAGGGTC 4506 4575 GACCCUGU G CAGGAGGU 2179 ACCTCCTG GGCTAGCTACAACGA ACAGGGTC 4506 4584 CAGGAGGG UAUCUCUG 2180 CAGAGATA GGCTAGCTACAACGA ACAGGGTC 4506 4584 CAGGAGGG UAUCUCUG 2180 CAGAGATA GGCTAGCTACAACGA ACAGGGTC 4506 4584 CAGGAGGU A UCUCUGG 2181 TCCAGAGA GGCTAGCTACAACGA ACCTCCTG 4508 4592 AUCUCUGG A CCUCUUGG 2181 TCCAGAGA GGCTAGCTACAACGA ACCTCCTG 4508 4594 CAGGAGCU G CCUCUUGG 2181 CCCAGAGA GGCTAGCTACAACGA ACCTCCTG 4508 4596 CUGGACCU G CCUCUUGG 2181 CCCAGAGA GGCTAGCTACAACGA ACCTCCTG 4508 4604 GCCUCUUG G UCAUUACC 2184 CGTAATGA GGCTAGCTACAACGA ACCTCCTG 4508 4604 GCCUCUUG G UCAUUACC 2186 CAGCCCC GGCTAGCTACAACGA CAAGAGG 4510 4607 UCUUGGUC A UUACGGG 2185 CCCCGTAA GGCTAGCTACAACGA CAAGAGG 4511 4607 UCUUGGUC A UUACAGG 2185 CCCCGTAA GGCTAGCTACAACGA CAAGAGG 4511 4610 UGGUCAUU A CGGGCCU 2186 CAGCCCC GGCTAGCTACAACGA CAAGAG 4512 4610 UGGUCAUU A CGGGCCU 2186 CAGCCCC GGCTAGCTACAACGA CAAGAG 4512 4610 UGGUCAUU A CGGGCCU 2188 AGGCCCG GGCTAGCTACAACGA CCAGCCC 4515 4610 UGGUCAUU A CGGGCCU 2188 AGGCCCG GGCTAGCTACAACGA CCAGCCC 4515 4625 UGGGCAGG CUGGCAG 2190 CCCTGATA GGCTAGCTACAACGA CCAGCCC 4516 4626 AGGCCU					4493
4538 UGCUGGUC A CUGCCUGC 2169 GCAGGCAG GGCTAGCTACAACGA GACCAGCA 4496 4541 UGGUCACU G CUGGGGG 2170 CCAGCAGG GGCTAGCTACAACGA AGTGACCA 4496 4545 CACUGCCU G CUGGGGGC 2171 GCCCCCAG GGCTAGCTACAACGA AGTGACCA 4497 4545 CACUGCCU G CUGGGGGC 2171 GCCCCCAG GGCTAGCTACAACGA AGGCAGTG 4498 4552 UGCUGGGG G CGUCAGAU 2172 ATCTGACG GGCTAGCTACAACGA CCCCAGCA 4499 4554 CUGGGGGC G UCAGAUGC 2173 GCATCTGA GGCTAGCTACAACGA CCCCAGCA 4499 4555 GGCGUCAG A UGCAGGGG 2174 CACCTGCA GGCTAGCTACAACGA GCCCCCAG 4500 4559 GGCGUCAG A UGCAGGGG 2174 CACCTGCA GGCTAGCTACAACGA CTGACGCC 4501 4561 CGUCAGAU G CAGGUGG 2175 GTCACCTG GGCTAGCTACAACGA ATCTGACG 4502 4565 AGAUGCAG G UGACCCUG 2176 CACGGGTCA GGCTAGCTACAACGA ATCTGACG 4502 4565 AGAUGCAG UGACCCUG 2176 CACGGG GGCTAGCTACAACGA CTCCATCT 4503 4568 UGCAGGUG A CCCUGUGC 2177 GCACAGG GGCTAGCTACAACGA CACCTGCA 4504 4573 GUGACCCU G UGCAGGAG 2178 CTCCTGCA GGCTAGCTACAACGA CACCTGCA 4504 4575 GACCCUGU G CAGGAGGU 2179 ACCTCCTG GGCTAGCTACAACGA ACAGGGTC 4506 4582 UGCAGGAG G UAUCUUG 2180 CAGAGATA GGCTAGCTACAACGA ACAGGGTC 4506 4582 UGCAGGAG UAUCUUG 2180 CAGAGATA GGCTAGCTACAACGA ACAGGGTC 4506 4592 AUCUCUGG A CCUGCUC 2180 CAGAGATA GGCTAGCTACAACGA ACCTCCTG 4508 4594 CUGCAGGACU G CUCUUGG 2183 CCAAGAGG GGCTAGCTACAACGA ACCTCCTG 4508 4596 CUGGACCU G CUCUUGG 2183 CCAAGAGG GGCTAGCTACAACGA ACCTCCTG 4508 4604 GCCUCUUG G UAUUACG 2184 CCTAATGA GGCTAGCTACAACGA ACGTCCAG 4604 GCCUCUUG G UAUUACG 2184 CCTAATGA GGCTAGCTACAACGA ACGTCCAG 4604 GCCUCUUG G UAUUACG 2186 CAGCCCC GGCTAGCTACAACGA ACGTCCAG 4601 UGGUCAAU A CAGGGCC 2186 CAGCCCC GGCTAGCTACAACGA CAGAGGC 4511 4602 GGGCCGG G CUGGGCAG 2187 CTGCCCAG GGCTAGCTACAACGA CAGAGGC 4511 4603 AGGGCCGG G CUGGGCAG 2187 CTGCCCAG GGCTAGCTACAACGA CCAGAGAC 4512 4610 UGGUCAAU A CGGGCCC 2188 AGGCCAG GGCTAGCTACAACGA CCAGCCC 4515 4625 UGGGCAGG CUGGGCCU 2188 AGGCCAG GGCTAGCTACAACGA CCAGCCC 4516 4630 AGGGCCGG G CUGGGCCU 2188 AGGCCTG GGCTAGCTACAACGA CCAGCCC 4516 4631 AUUACGGG G CUGGGCCU 2188 AGGCCAG GGCTAGCTACAACGA CCAGCCC 4516 4632 GGGCUGG G CUGGGCG 2191 GCCCCGG GGCTAGCTACAACGA CCAGCCC 4516 4632 GGGCAGG G CUGGGCG 219					4494
4541         UGGUCACU G CUGGUGG         2170         CCAGCAGG GGCTAGCTACAACGA AGTGACCA         4497           4545         CACUGCU G CUGGGGC         2171         GCCCCCAG GGCTAGCTACAACGA AGGCAGTG         4498           4552         UGCUGGGG G CGUCAGAU         2172         ATCTGACG GGCTAGCTACAACGA CCCCAGCA         4499           4554         CUGGGGG G UCAGAUG         2173         GCATCTGA GGCTAGCTACAACGA CCCCAGCA         4499           4559         GGCGUCAG A UGCAGGUG         2174         CACCTGCA GGCTAGCTACAACGA CTGACGC         4500           4561         CGUCAGAU G CAGGUGAC         2175         GTCACCTG GGCTAGCTACAACGA ATCTGACG         4502           4565         AGAUGCAG G UGACCCUG         2176         CAGGGTCA GGCTAGCTACAACGA ATCTGACG         4503           4568         UGCAGGGG A CCCUGUGC         2177         GCACAGGG GCTAGCTACAACGA ACCTGCA         4504           4573         GUGACCCU G UGCAGGAG         2178         CTCCTGCA GGCTAGCTACAACGA ACCGGTCA         4504           4582         UGCAGGAGGU         2179         ACCTCCTG GCTAGCTACAACGA ACCTCCA         4506           4582         UGCAGGAG G UAUCUUG         2180         CAGAGATA GGCTAGCTACAACGA ACCTCCTG         4506           4584         CAGGAGGU A UUCUUGA         2181         TCCAGAGA GGCTACAACGA ACCTCCTG         4508					4495
4545 CACUGCCU G CUGGGGGC 2171 GCCCCCAG GGCTAGCTACAACGA AGGCAGTG 4499 4552 UGCUGGGG G CGUCAGAU 2172 ATCTGACG GGCTAGCTACAACGA ACGCCCAGCA 4499 4554 CUGGGGGC G UCAGAUGC 2173 GCATCTGA GGCTAGCTACAACGA CCCCAGCA 4499 4559 GGCGUCAG A UGCAGGUG 2174 CACCTGCA GGCTAGCTACAACGA CTGACGCC 4501 4561 CGUCAGAU G CAGGUGAC 2175 GTCACCTG GGCTAGCTACAACGA CTGACGCC 4501 4565 AGAUGCAG G UGACCCUG 2176 CAGGGTCA GGCTAGCTACAACGA CTGACGCC 4502 4568 UGCAGGUG A CCCUGUGC 2177 GCACAGGG GGCTAGCTACAACGA CTGCATCT 4503 4573 GUGACCCU G UGCAGGAG 2177 GCACAGGG GGCTAGCTACAACGA CACCTGCA 4504 4573 GUGACCCU G UGCAGGAG 2178 CTCCTGCA GGCTAGCTACAACGA ACGGGTCA 4504 4575 GACCCUGU G CAGGAGGU 2179 ACCTCCTG GGCTAGCTACAACGA ACAGGGTC 4506 4582 UGCAGGAG G UAUCUCUG 2180 CAGAGATA GGCTAGCTACAACGA ACAGGGTC 4506 4582 UGCAGGAG G UAUCUCUG 2180 CAGAGATA GGCTAGCTACAACGA ACCTCCTG 4507 4584 UGCAGGAG UAUCUCUG 2180 CAGAGATA GGCTAGCTACAACGA ACCTCCTG 4507 4584 UGCAGGAG CAUCUCUG 2180 CAGAGATA GGCTAGCTACAACGA ACCTCCTG 4508 4592 AUCUCUGG A CCUCCUCU 2182 CAGGCAGG GGCTAGCTACAACGA ACCTCCTG 4508 4596 CUGGACCU G CCUCUUGG 2183 CCAAGAGG GGCTAGCTACAACGA ACCTCCTG 4508 4604 GCCUCUUG G UCAUUACG 2184 CGTAATGA GGCTAGCTACAACGA ACGTCCAG 4510 4604 GCCUCUUG G UCAUUACG 2184 CGTAATGA GGCTAGCTACAACGA ACGTCCAG 4510 4604 UCUUGGUC A UUACGGG 2185 CCCCGTAA GGCTAGCTACAACGA ACAGAGGC 4511 4607 UCUUGGUC A UUACGGG 2185 CCCCGTAA GGCTAGCTACAACGA ACAGAGGC 4511 4610 UGGUCAUU A CGGGCCU 2186 CAGCCCC GGCTAGCTACAACGA ACAGAGGC 4511 4625 UGGGCAG G CUGGGCAG 2187 CTGCCCAG GGCTAGCTACAACGA ACCCAGACCA 4516 4630 AGGCCUG G UAUCAGGG 2187 CTGCCCAG GGCTAGCTACAACGA CCCGTAAT 4514 4620 GGGCUGG G CAGGGCCU 2188 AGGCCCTG GGCTAGCTACAACGA CCAGCCCC 4515 4631 AUUACGGG G CUGGGCAG 2187 CTGCCCAG GGCTAGCTACAACGA CCAGCCCC 4515 4625 UGGGCAG G CUGGGCCU 2188 AGGCCCTG GGCTAGCTACAACGA CCAGCCCC 4515 4632 GGCCUGG G CUGGGCCU 2188 AGGCCCTG GGCTAGCTACAACGA CCAGCCCC 4516 4638 GUAUCAGG G CCUGGGCCU 2191 GGCCCTGA GGCTAGCTACAACGA CCAGCCCC 4516 4639 CGCCCGG G UUGCAGGG 2191 GGCCCTGA GGCTAGCTACAACGA CCAGCCCC 4516 4630 AGGCCCG G UUGCAGG 2191 GGCCCTGA GGCTAGCTACAACGA C					4496
4552 UGCUGGGG G CGUCAGAU 2172 ATCTGACG GCTAGCTACAACGA CCCCAGCA 4499 4554 CUGGGGGC G UCAGAUGC 2173 GCATCTGA GGCTAGCTACAACGA CCCCAGCA 4499 4559 GGCGUCAG A UGCAGGUG 2174 CACCTGCA GGCTAGCTACAACGA CTGACGCC 4501 4561 CGUCAGAU G CAGGUGAC 2175 GTCACCTG GGCTAGCTACAACGA ATCTGACGC 4502 4565 AGAUGCAG G UGACCCUG 2176 CAGGGTCA GGCTAGCTACAACGA CTGACGCC 4502 4568 UGCAGGUG A CCCUGUGC 2177 GCACAGGG GGCTAGCTACAACGA CTGCACTCT 4503 4573 GUGACCCU G UGCAGGAG 2178 CTCCTGCA GGCTAGCTACAACGA ACCTGCA 4504 4575 GACCCUGU G CAGGAGGU 2179 ACCTCCTG GGCTAGCTACAACGA ACGGGTCA 4504 4575 GACCCUGU G CAGGAGGU 2179 ACCTCCTG GGCTAGCTACAACGA ACGGGTC 4506 4582 UGCAGGAG G UAUCUCUG 2180 CAGAGATA GGCTAGCTACAACGA ACGGGTC 4506 4584 CAGGAGGU A UCUCUGGA 2181 TCCAGAGA GGCTAGCTACAACGA ACCTCCTG 4508 4595 AUCUCUGG A CCUGCCU 2182 GAGGCAGG GGCTAGCTACAACGA ACGTCCTC 4508 4596 CUGGACCU G CCUCUUGG 2183 CCAAGAGG GGCTAGCTACAACGA ACGTCCTC 4509 4596 CUGGACCU G CCUCUUGG 2183 CCAAGAGG GGCTAGCTACAACGA ACGTCCTG 4509 4604 GCCUCUUG G UCAUUACG 2184 CGTAATGA GGCTAGCTACAACGA ACGTCCAG 4510 4607 UCUUGGUC A UUACGGGG 2185 CCCCGTAA GGCTAGCTACAACGA ACGTCCAG 4510 4610 UGGUCAUU A CGGGGCU 2186 CAGCCCC GGCTAGCTACAACGA CAGAGGC 4511 4610 UGGUCAUU A CGGGGCU 2186 CAGCCCCG GGCTAGCTACAACGA CCGAAGAA 4512 4611 UGGUCAUU A CGGGGCU 2188 AGGCCCG GGCTAGCTACAACGA ACTGCCAG 4513 4620 GGGGCUGG G CAGGGCCU 2188 AGGCCCTG GGCTAGCTACAACGA CCGGTAAT 4514 4620 GGGGCUGG G CAGGGCCU 2188 AGGCCCTG GGCTAGCTACAACGA CCGGCCC 4515 4630 AGGGCCUG G UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGGCCC 4516 4630 AGGGCCUG G UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGGCCC 4516 4630 AGGGCCUG G UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGGCCC 4516 4630 AGGGCCUG G UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGGCCC 4516 4630 AGGGCCUG G UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGGCCC 4516 4630 AGGGCCUG G UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGGCCC 4516 4631 AGGGCCCG G CUGGGCU 2193 AACCCCAG GGCTAGCTACAACGA CCAGGCCC 4516 4632 AGGGCUGG G CUGGGGGU 2193 AACCCCAG GGCTAGCTACAACGA CCTGACC 4520 4652 CUGGGGUU G CAGGGCU 2196 AGGCCCG GGCTAGCTACAACGA CCTG	<del></del>		2170		4497
4554 CUGGGGGC G UCAGAUGC 2173 GCATCTGA GGCTAGCTACAACGA GCCCCCAG 4500 4559 GGCGUCAG A UGCAGGUG 2174 CACCTGCA GGCTAGCTACAACGA CTGACGCC 4501 4561 CGUCAGAU G CAGGUGAC 2175 GTCACCTG GGCTAGCTACAACGA ATCTGACG 4502 4565 AGAUGCAG G UGACCCUG 2176 CAGGGTCA GGCTAGCTACAACGA CTGACGCC 4503 4568 UGCAGGUG C CCUGUGC 2177 GCACAGGG GGCTAGCTACAACGA CTGCATCT 4503 4568 UGCAGGUG A CCCUGUGC 2177 GCACAGGG GGCTAGCTACAACGA CTGCATCT 4503 4573 GUGACCCU G UGCAGGAG 2178 CTCCTGCA GGCTAGCTACAACGA AGGGTCAC 4504 4573 GUGACCCU G UGCAGGAG 2179 ACCTCCTG GGCTAGCTACAACGA AGGGTCAC 4506 4582 UGCAGGAG G UAUCUCUG 2180 CAGAGATA GGCTAGCTACAACGA ACAGGGTC 4506 4584 CAGGAGGU A UCUCUGGA 2181 TCCAGAGA GGCTAGCTACAACGA ACCTCCTG 4508 4592 AUCUCUGG A CCUGCCUC 2182 GAGGCAGG GGCTAGCTACAACGA ACCTCCTG 4508 4596 CUGGACCU G CCUCUUGG 2183 CCAAGAGG GGCTAGCTACAACGA ACCTCCTG 4509 4604 GCCUCUUG G UCAUUACG 2183 CCAAGAGG GGCTAGCTACAACGA AGGTCCAG 4510 4604 GCCUCUUG G UCAUUACG 2184 CGTAATGA GGCTAGCTACAACGA AGGTCCAG 4510 4606 UUUUGGUC A UUACGGGG 2185 CCCCGTAA GGCTAGCTACAACGA CACAGAGA 4511 4610 UGGUCAUU A CGGGGCUG 2186 CAGCCCCG GGCTAGCTACAACGA AATGACCA 4513 4615 AUUACGGG CUGGGCCU 2186 CAGCCCCG GGCTAGCTACAACGA AATGACCA 4513 4615 AUUACGGG CUGGGCAC 2187 CTGCCCAG GGCTAGCTACAACGA CACGCCCC 4514 4620 GGGGCUGG G CAGGGCCU 2188 AGGCCCTG GGCTAGCTACAACGA CCCGTAAT 4514 4620 GGGGCUGG G CAGGGCCU 2188 AGGCCCTG GGCTAGCTACAACGA CCCGCCC 4515 4625 UGGGCAGG CUGGUAU 2189 ATACCAGG GGCTAGCTACAACGA CCAGCCCC 4516 4630 AGGGCCUG UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGCCCC 4516 4630 AGGGCCUG UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGCCCC 4516 4631 AGGGCCCG G UUCAGGGC 2191 GGCCCTGAA GGCTAGCTACAACGA CCAGCCCC 4516 4632 AGGGCCUG UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGCCCC 4516 4633 AGGGCCCG GUUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGCCCC 4516 4634 AGGGCCGG G UUCAGGG 2191 GGCCCTGAG GGCTAGCTACAACGA CCAGGCC 4518 4634 AGGGCCGG G UUCAGGG 2191 GGCCCTGAG GGCTAGCTACAACGA CCAGGCC 4520 4652 CUGGGGUU G CAGGGCU 2194 CCCTGCAA GGCTAGCTACAACGA CCAGCCCT 4520 4654 AGGCCCGG G CUGGGCCU 2196 AGGCCCAG GGCTAGCTACAACGA CCAGCCCT	<u> </u>		2171		4498
4559 GGCGUCAG A UGCAGGUG 2174 CACCTGCA GCTAGCTACAACGA CTGACGCC 4501 4561 CGUCAGAU G CAGGUGAC 2175 GTCACCTG GGCTAGCTACAACGA ATCTGACG 4502 4565 AGAUGCAG G UGACCCUG 2176 CAGGGTCA GGCTAGCTACAACGA ATCTGACG 4502 4568 UGCAGGUG A CCCUGUGC 2177 GCACAGGG GGCTAGCTACAACGA CTGCATCT 4503 4573 GUGACCCU G UGCAGGAG 2178 CTCCTGCA GGCTAGCTACAACGA CACCTGCA 4504 4573 GUGACCCU G UGCAGGAG 2179 ACCTCCTG GGCTAGCTACAACGA AGGGTCAC 4505 4582 UGCAGGAG G UAUCUCUG 2180 CAGGAGTA GGCTAGCTACAACGA ACAGGGTC 4506 4584 CAGGAGGU A UCUCUGGA 2181 TCCAGAGA GGCTAGCTACAACGA ACCTCCTGCA 4507 4596 CUGGACCU G CCUCUUGG 2181 TCCAGAGA GGCTAGCTACAACGA ACCTCCTG 4508 4596 CUGGACCU G CCUCUUGG 2183 CCAAGAGG GGCTAGCTACAACGA ACGTCCAG 4509 4604 GCCUCUUG C UAUUACCG 2183 CCAAGAGG GGCTAGCTACAACGA ACGTCCAG 4500 4604 GCCUCUUG C UAUUACG 2184 CGTAATGA GGCTAGCTACAACGA ACGTCCAG 4510 4604 GCCUCUUG A UUACGGGG 2185 CCCCGTAA GGCTAGCTACAACGA ACGTCCAG 4511 4607 UCUUGGUC A UUACGGGG 2185 CCCCGTAA GGCTAGCTACAACGA ACGACAAGA 4512 4610 UGGUCAUU A CGGGGCUG 2186 CAGCCCCG GGCTAGCTACAACGA AATGACCA 4513 4615 AUUACGGG CUGGGCAC 2187 CTGCCCAG GGCTAGCTACAACGA ACCAAGAG 4514 4620 GGGGCUGG G CAGGGCCU 2188 AGGCCCG GGCTAGCTACAACGA CCCGCTAAT 4514 4620 GGGGCUGG G CAGGGCCU 2188 AGGCCCTG GGCTAGCTACAACGA CCAGCCCC 4515 4625 UGGGCAGG G CUGGUAU 2189 ATACCAGG GGCTAGCTACAACGA CCAGCCCC 4516 4630 AGGGCCUG UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGCCCC 4516 4630 AGGGCCUG UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA ACCAGGCC 4518 4638 GUAUCAGG G CCCGCUG 2192 CAGGGGG GGCTAGCTACAACGA ACCAGGCC 4518 4639 AGGGCCCG G UUCAGGGC 2190 CCCTGATA GGCTAGCTACAACGA ACCAGGCC 4518 4630 AGGGCCCG G UUCAGGGC 2190 CCCTGATA GGCTAGCTACAACGA ACCAGGCC 4518 4630 AGGGCCCG GUACAGGGC 2190 CCCTGATA GGCTAGCTACAACGA ACCAGGCC 4518 4631 AGGGCCCG GUACAGGG CCCGCGGGG GGCTAGCTACAACGA ACCAGGCC 4518 4632 GGCCUGGU A UCAGGGC 2190 CCCTGATA GGCTAGCTACAACGA ACCAGGCC 4518 4633 AGGGCCGG G UUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA ACCAGGCC 4520 4649 CCGCUGGG G UUCAGGG 2191 ACCCCGAGGG GGCTAGCTACAACGA ACCAGGCC 4520 4652 CUGGGGUU G CAGGGCU 2195 CAGCCGGG GGCTAGCTACAACGA ACCCCAG			2172		4499
4561 CGUCAGAU G CAGGUGAC  2175 GTCACCTG GGCTAGCTACACGA ATCTGACG 4502 4565 AGAUGCAG G UGACCCUG 2176 CAGGGTCA GGCTAGCTACACGA CTGCATCT 4503 4568 UGCAGGUG A CCCUGUGC 2177 GCACAGGG GGCTAGCTACACGA CACCTGCA 4504 4573 GUGACCCU G UGCAGGAG 2178 CTCCTGCA GGCTAGCTACACGA CACCTGCA 4505 4575 GACCCUGU G CAGGAGGU 2179 ACCTCCTG GGCTAGCTACACGA ACAGGGTC 4506 4582 UGCAGGAG G UAUCUCUG 2180 CAGAGATA GGCTAGCTACAACGA ACAGGGTC 4508 4592 AUCUCUGG A CCUCUUGG 2181 TCCAGAGA GGCTAGCTACAACGA ACCTCCTG 4508 4596 CUGGACCU G CCUCUUGG 2181 CCAGAGAG GGCTAGCTACAACGA CCTCCTGC 4509 4596 CUGGACCU G CCUCUUGG 2181 CCAGAGAG GGCTAGCTACAACGA ACCTCCTG 4509 4596 CUGGACCU G CCUCUUGG 2181 CCAGAGAG GGCTAGCTACAACGA ACCTCCTG 4500 4604 GCCUCUUG G UCAUUACG 2184 CGTAATGA GGCTAGCTACAACGA AGGTCCAG 4510 4607 UCUUGGUC A UUACGGGG 2185 CCCCGTAA GGCTAGCTACAACGA AGGTCCAG 4511 4610 UGGUCAUU A CGGGGCUG 2186 CAGCCCCG GGCTAGCTACAACGA CACAGAG 4512 4610 UGGUCAUU A CGGGGCUG 2186 CAGCCCCG GGCTAGCTACAACGA CACGACCA 4513 4615 AUUACGGG G CUGGGCAG 2187 CTGCCCAG GGCTAGCTACAACGA CCCGTAAT 4514 4620 GGGGCUG G CAGGGCCU 2188 AGGCCCCG GGCTAGCTACAACGA CCAGCCCC 4515 4620 GGGCUGG G CCUGGUAU 2189 ATACCAGG GGCTAGCTACAACGA CCAGCCCC 4516 4630 AGGGCCUG UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGCCCC 4516 4630 AGGGCCUG UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGCCCC 4516 4638 GUAUCAGG G CCCGCUG 2192 CAGCGGGG GGCTAGCTACAACGA CCAGCCCC 4516 4638 GUAUCAGG G CCCGCUG 2192 CAGCGGGG GGCTAGCTACAACGA CCAGCCCC 4516 4638 GUAUCAGG G CCCGCUG 2193 AACCCCAG GGCTAGCTACAACGA CCAGGCCC 4516 4639 AGGGCCCC G CUGGGGUU 2193 AACCCCAG GGCTAGCTACAACGA CCAGGCCC 4516 4649 CCGCUGGG G UUGCAGGG 2194 CCCTGAA GGCTAGCTACAACGA CCAGGCCC 4520 4652 CUGGGGUU G CAGGGCCU 2195 CAGCCGGG GGCTAGCTACAACGA CCAGCCCT 4520 4652 CUGGGGUU G CAGGGCCU 2196 AGCCCCG GGCTAGCTACAACGA CCAGCCCT 4520 4652 CUGGGGUU G CAGGGCCU 2197 AGCACAGG GGCTAGCTACAACGA CCAGCCCT 4520 4654 AGGCCCGG G CCGGCCU 2197 AGCACAGG GGCTAGCTACAACGA CCAGCCCT 4524 4652 CUGGGGUU G CAGGGCCU 2197 AGCACAGG GGCTAGCTACAACGA CCAGCCCT 4524			2173		4500
4565 AGAUGCAG G UGACCCUG 2176 CAGGGTCA GGCTAGCTACAACGA CTGCATCT 4503 4568 UGCAGGUG A CCCUGUGC 2177 GCACAGGG GGCTAGCTACAACGA CACCTGCA 4504 4573 GUGACCCU G UGCAGGAG 2178 CTCCTGCA GGCTAGCTACAACGA AGGGTCAC 4505 4575 GACCCUGU G CAGGAGGU 2179 ACCTCCTG GGCTAGCTACAACGA ACAGGGTC 4506 4582 UGCAGGAG G UAUCUUGG 2180 CAGAGATA GGCTAGCTACAACGA ACAGGGTC 4507 4584 CAGGAGGU A UCUUGGA 2181 TCCAGAGA GGCTAGCTACAACGA ACCTCCTG 4508 4592 AUCUCUGG A CCUGCCUC 2182 GAGGCAGG GGCTAGCTACAACGA ACCTCCTG 4508 4592 AUCUCUGG A CCUCUUGG 2183 CCAAGAGG GGCTAGCTACAACGA ACCTCCTG 4508 4596 CUGGACCU G CCUCUUGG 2183 CCAAGAGG GGCTAGCTACAACGA AGGTCCAG 4510 4604 GCCUCUUG G UCAUUACG 2184 CGTAATGA GGCTAGCTACAACGA CAGAGGC 4511 4607 UCUUGGUC A UUACGGGG 2185 CCCCGTAA GGCTAGCTACAACGA GACCAAGA 4512 4610 UGGUCAUU A CGGGGCUG 2186 CAGCCCC GGCTAGCTACAACGA AATGACCA 4513 4615 AUUACGGG G CUGGGCAG 2187 CTGCCCAG GGCTAGCTACAACGA CCCGTAAT 4514 4620 GGGGCUGG G CAGGGCCU 2188 AGGCCCTG GGCTAGCTACAACGA CCCGTAAT 4514 4620 GGGCUGG G CAGGGCCU 2188 AGGCCCTG GGCTAGCTACAACGA CCAGCCCC 4515 4625 UGGGCAGG G CUGGGCAG 2187 CTGCCCAG GGCTAGCTACAACGA CCAGCCCC 4516 4630 AGGGCCUG UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGCCCC 4516 4630 AGGGCCUG UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGCCCC 4516 4638 GUAUCAGG G CCCCCCUG 2191 GGCCCTGA GGCTAGCTACAACGA CCAGCCCC 4516 4638 GUAUCAGG G CCCCCCUG 2191 GGCCCTGA GGCTAGCTACAACGA CCAGCCCC 4516 4639 AGGGCCUG A UCAGGGC 2191 GGCCCTGA GGCTAGCTACAACGA ACCAGGCC 4518 4643 AGGCCCC G CUGGGGUU 2193 AACCCCAG GGCTAGCTACAACGA ACCAGGCC 4518 4643 AGGCCCC G CUGGGGUU 2193 AACCCCAG GGCTAGCTACAACGA ACCAGGCC 4518 4652 CUGGGGUU G CAGGGCU 2195 CAGCCCAG GGCTAGCTACAACGA ACCAGGCC 4524 4654 AGGGCCUG G UUCCAGGG 2194 CCCTGCAA GGCTAGCTACAACGA ACCAGGCC 4524 4657 GUUCCAGG G CUGGGCCU 2196 AGGCCCTG GGCTAGCTACAACGA ACCAGGCC 4524 4657 GUUCCAGG G CUGGCCU 2197 AACCACGA GGCTAGCTACAACGA ACCCCAG 4524 4662 AGGCCUG G CUGGCCU 2196 AGGCCCAG GGCTAGCTACAACGA ACCCCAG 4524 4662 AGGCCUG G CUGGCCU 2197 AGCACAGG GGCTAGCTACAACGA ACCCCAG 4524 4666 AGGCCUG G CUGGCCU 2197 AGCACAGG GGCTAGCTACAACGA CCAGCCCT 452	L		2174		4501
4568 UGCAGGUG A CCCUGUGC 2177 GCACAGGG GGCTAGCTACAACGA CACCTGCA 4504 4573 GUGACCCU G UGCAGGAG 2178 CTCCTGCA GGCTAGCTACAACGA AGGGTCAC 4505 4575 GACCCUGU G CAGGAGGU 2179 ACCTCCTG GGCTAGCTACAACGA ACAGGGTC 4506 4582 UGCAGGAG G UAUCUCUG 2180 CAGAGATA GGCTAGCTACAACGA ACAGGGTC 4506 4584 CAGGAGGU A UCUCUGGA 2181 TCCAGAGA GGCTAGCTACAACGA ACCTCCTG 4508 4592 AUCUCUGG A CCUGCCUC 2182 GAGGCAGG GGCTAGCTACAACGA ACCTCCTG 4508 4596 CUGGACCU G CCUCUUGG 2183 CCAAGAGG GGCTAGCTACAACGA CCAGAGAT 4509 4504 GCCUCUUG G UCAUUACG 2184 CGTAATGA GGCTAGCTACAACGA AGGAGGC 4511 4604 GCCUCUUG G UCAUUACG 2185 CCCCGTAA GGCTAGCTACAACGA AACAGAGC 4510 4610 UGGUCAUU A CGGGGCUG 2186 CAGCCCCG GGCTAGCTACAACGA AACAGAG 4512 4610 UGGUCAUU A CGGGGCUG 2186 CAGCCCCG GGCTAGCTACAACGA AACAGAGA 4512 4610 AUUACGGG CUGGGCAG 2187 CTGCCCAG GGCTAGCTACAACGA ACCAGACCA 4513 4620 GGGGCUGG G CAGGGCCU 2188 AGGCCCTG GGCTAGCTACAACGA CCGTAAT 4514 4620 GGGGCUGG G CUGGUAU 2189 ATACCAGG GGCTAGCTACAACGA CCAGCCCC 4515 4625 UGGGCAGG G CUGGUAU 2189 ATACCAGG GGCTAGCTACAACGA CCAGCCCC 4516 4630 AGGGCCUG UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGCCCC 4516 4630 AGGGCCUG UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA ACCAGCCCC 4516 4630 AGGGCCUG UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGCCCC 4516 4630 AGGGCCUG UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGCCCC 4516 4630 AGGGCCUG UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGCCCC 4516 4630 AGGGCCUG UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CCAGGCCCT 4517 4632 GGCCUGGU A UCAGGGC 2191 GGCCCTGA GGCTAGCTACAACGA CCAGGCCCT 4516 4638 GUAUCAGG CCCGCUG 2192 CAGCGGGG GGCTAGCTACAACGA CCAGGCCCT 4517 4632 GGCCUGGU A UCAGGGC 2191 GGCCCTGA GGCTAGCTACAACGA CCAGGCCCT 4516 4638 GUAUCAGG CCCGGCGC 2191 GGCCCTGA GGCTAGCTACAACGA CCAGGCCCT 4516 4639 CGCGGGGG GCCGGGGCG CCGGGGG CCGGGGGGGGG	<b></b>		2175		4502
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4607 UCUUGGUC A UUACGGGG 2185 CCCCGTAA GGCTAGCTACAACGA GACCAAGA 4512 4610 UGGUCAUU A CGGGGCUG 2186 CAGCCCCG GGCTAGCTACAACGA AATGACCA 4513 4615 AUUACGGG G CUGGGCAG 2187 CTGCCCAG GGCTAGCTACAACGA CCCGTAAT 4514 4620 GGGGCUGG G CAGGGCCU 2188 AGGCCCTG GGCTAGCTACAACGA CCAGCCCC 4515 4625 UGGGCAGG G CCUGGUAU 2189 ATACCAGG GGCTAGCTACAACGA CCTGCCCA 4516 4630 AGGGCCUG G UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CAGGCCCT 4517 4632 GGCCUGGU A UCAGGGCC 2191 GGCCCTGA GGCTAGCTACAACGA ACCAGGCC 4518 4638 GUAUCAGG G CCCCGCUG 2192 CAGCGGGG GGCTAGCTACAACGA CCTGATAC 4519 4643 AGGGCCCC G CUGGGGUU 2193 AACCCCAG GGCTAGCTACAACGA GGGGCCCT 4520 4649 CCGCUGGG G UUGCAGGG 2194 CCCTGCAA GGCTAGCTACAACGA CCCAGCGC 4521 4652 CUGGGGUU G CAGGGCUG 2195 CAGCCCTG GGCTAGCTACAACGA CCCAGCGG 4521 4657 GUUGCAGG G CUGGGCCU 2196 AGGCCCAG GGCTAGCTACAACGA CCTGCAAC 4523 4662 AGGGCUGG G CCUGUGCU 2197 AGCACAGG GGCTAGCTACAACGA CCAGCCCT 4524 4666 CUGGGCCU G UGCUGUGCU 2197 AGCACAGG GGCTAGCTACAACGA CCAGCCCT 4524 4666 CUGGGCCU G UGCUGUCU 2197 AGCACAGG GGCTAGCTACAACGA CCAGCCCT 4524	4604	GCCUCUUG G UCAUUACG		CGTAATGA GGCTAGCTACAACGA CAAGAGGC	
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4615 AUUACGGG G CUGGGCAG 2187 CTGCCCAG GGCTAGCTACAACGA CCCGTAAT 4514 4620 GGGGCUGG G CAGGGCCU 2188 AGGCCCTG GGCTAGCTACAACGA CCAGCCCC 4515 4625 UGGGCAGG G CCUGGUAU 2189 ATACCAGG GGCTAGCTACAACGA CCTGCCCA 4516 4630 AGGGCCUG G UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CAGGCCCT 4517 4632 GGCCUGGU A UCAGGGCC 2191 GGCCCTGA GGCTAGCTACAACGA ACCAGGCC 4518 4638 GUAUCAGG G CCCCGCUG 2192 CAGCGGGG GGCTAGCTACAACGA CCTGATAC 4519 4643 AGGGCCCC G CUGGGGUU 2193 AACCCCAG GGCTAGCTACAACGA GGGGCCCT 4520 4649 CCGCUGGG G UUGCAGGG 2194 CCCTGCAA GGCTAGCTACAACGA CCCAGCGG 4521 4652 CUGGGGUU G CAGGGCUG 2195 CAGCCCTG GGCTAGCTACAACGA CCCAGCGG 4522 4657 GUUGCAGG G CUGGGCCU 2196 AGGCCCAG GGCTAGCTACAACGA CCTGCAAC 4523 4662 AGGGCUGG G CCUGUGCU 2197 AGCACAGG GGCTAGCTACAACGA CCAGCCCT 4524	4610	UGGUCAUU A CGGGGCUG		<del></del>	
4620 GGGGCUGG G CAGGGCCU 2188 AGGCCCTG GGCTAGCTACAACGA CCAGCCCC 4515 4625 UGGGCAGG G CCUGGUAU 2189 ATACCAGG GGCTAGCTACAACGA CCTGCCCA 4516 4630 AGGGCCUG G UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CAGGCCCT 4517 4632 GGCCUGGU A UCAGGGCC 2191 GGCCCTGA GGCTAGCTACAACGA ACCAGGCC 4518 4638 GUAUCAGG G CCCCGCUG 2192 CAGCGGGG GGCTAGCTACAACGA CCTGATAC 4519 4643 AGGGCCCC G CUGGGGUU 2193 AACCCCAG GGCTAGCTACAACGA GGGGCCCT 4520 4649 CCGCUGGG G UUGCAGGG 2194 CCCTGCAA GGCTAGCTACAACGA CCCAGCGG 4521 4652 CUGGGGUU G CAGGGCUG 2195 CAGCCCTG GGCTAGCTACAACGA CCCAGCGG 4522 4657 GUUGCAGG G CUGGGCCU 2196 AGGCCCAG GGCTAGCTACAACGA CCTGCAAC 4523 4662 AGGGCUGG G CCUGUGCU 2197 AGCACAGG GGCTAGCTACAACGA CCAGCCCT 4524	4615	AUUACGGG G CUGGGCAG		CTGCCCAG GGCTAGCTACAACGA CCCGTAAT	
4625 UGGGCAGG G CCUGGUAU 2189 ATACCAGG GGCTAGCTACAACGA CCTGCCCA 4516 4630 AGGGCCUG G UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CAGGCCCT 4517 4632 GGCCUGGU A UCAGGGCC 2191 GGCCCTGA GGCTAGCTACAACGA ACCAGGCC 4518 4638 GUAUCAGG G CCCCGCUG 2192 CAGCGGGG GGCTAGCTACAACGA CCTGATAC 4519 4643 AGGGCCCC G CUGGGGUU 2193 AACCCCAG GGCTAGCTACAACGA GGGGCCCT 4520 4649 CCGCUGGG G UUGCAGGG 2194 CCCTGCAA GGCTAGCTACAACGA CCCAGCGG 4521 4652 CUGGGGUU G CAGGGCUG 2195 CAGCCCTG GGCTAGCTACAACGA AACCCCAG 4522 4657 GUUGCAGG G CUGGGCCU 2196 AGGCCCAG GGCTAGCTACAACGA CCTGCAAC 4523 4662 AGGGCUGG G CCUGUGCU 2197 AGCACAGG GGCTAGCTACAACGA CCAGCCCT 4524	4620	GGGGCUGG G CAGGGCCU			
4630 AGGGCCUG G UAUCAGGG 2190 CCCTGATA GGCTAGCTACAACGA CAGGCCCT 4517  4632 GGCCUGGU A UCAGGGCC 2191 GGCCCTGA GGCTAGCTACAACGA ACCAGGCC 4518  4638 GUAUCAGG G CCCCGCUG 2192 CAGCGGGG GGCTAGCTACAACGA CCTGATAC 4519  4643 AGGGCCCC G CUGGGGUU 2193 AACCCCAG GGCTAGCTACAACGA GGGGCCCT 4520  4649 CCGCUGGG G UUGCAGGG 2194 CCCTGCAA GGCTAGCTACAACGA CCCAGCGG 4521  4652 CUGGGGUU G CAGGGCUG 2195 CAGCCCTG GGCTAGCTACAACGA AACCCCAG 4522  4657 GUUGCAGG G CUGGGCCU 2196 AGGCCCAG GGCTAGCTACAACGA CCTGCAAC 4523  4662 AGGGCUGG G CCUGUGCU 2197 AGCACAGG GGCTAGCTACAACGA CCAGCCCT 4524	4625	UGGGCAGG G CCUGGUAU			
4632 GGCCUGGU A UCAGGGCC 2191 GGCCCTGA GGCTAGCTACAACGA ACCAGGCC 4518  4638 GUAUCAGG G CCCCGCUG 2192 CAGCGGGG GGCTAGCTACAACGA CCTGATAC 4519  4643 AGGGCCCC G CUGGGGUU 2193 AACCCCAG GGCTAGCTACAACGA GGGGCCCT 4520  4649 CCGCUGGG G UUGCAGGG 2194 CCCTGCAA GGCTAGCTACAACGA CCCAGCGG 4521  4652 CUGGGGUU G CAGGGCUG 2195 CAGCCCTG GGCTAGCTACAACGA AACCCCAG 4522  4657 GUUGCAGG G CUGGGCCU 2196 AGGCCCAG GGCTAGCTACAACGA CCTGCAAC 4523  4662 AGGGCUGG G CCUGUGCU 2197 AGCACAGG GGCTAGCTACAACGA CCAGCCCT 4524	4630				
4638 GUAUCAGG G CCCCGCUG 2192 CAGCGGGG GGCTAGCTACAACGA CCTGATAC 4519  4643 AGGGCCCC G CUGGGGUU 2193 AACCCCAG GGCTAGCTACAACGA GGGGCCCT 4520  4649 CCGCUGGG G UUGCAGGG 2194 CCCTGCAA GGCTAGCTACAACGA CCCAGCGG 4521  4652 CUGGGGUU G CAGGGCUG 2195 CAGCCCTG GGCTAGCTACAACGA AACCCCAG 4522  4657 GUUGCAGG G CUGGGCCU 2196 AGGCCCAG GGCTAGCTACAACGA CCTGCAAC 4523  4662 AGGGCUGG G CCUGUGCU 2197 AGCACAGG GGCTAGCTACAACGA CCAGCCCT 4524	4632	. <u> </u>			
4643 AGGGCCCC G CUGGGGUU 2193 AACCCCAG GGCTAGCTACAACGA GGGGCCCT 4520 4649 CCGCUGGG G UUGCAGGG 2194 CCCTGCAA GGCTAGCTACAACGA CCCAGCGG 4521 4652 CUGGGGUU G CAGGGCUG 2195 CAGCCCTG GGCTAGCTACAACGA AACCCCAG 4522 4657 GUUGCAGG G CUGGGCCU 2196 AGGCCCAG GGCTAGCTACAACGA CCTGCAAC 4523 4662 AGGGCUGG G CCUGUGCU 2197 AGCACAGG GGCTAGCTACAACGA CCAGCCCT 4524	4638				
4649 CCGCUGGG G UUGCAGGG 2194 CCCTGCAA GGCTAGCTACAACGA CCCAGCGG 4521 4652 CUGGGGUU G CAGGGCUG 2195 CAGCCCTG GGCTAGCTACAACGA AACCCCAG 4522 4657 GUUGCAGG G CUGGGCCU 2196 AGGCCCAG GGCTAGCTACAACGA CCTGCAAC 4523 4662 AGGGCUGG G CCUGUGCU 2197 AGCACAGG GGCTAGCTACAACGA CCAGCCCT 4524	4643				
4652 CUGGGGUU G CAGGGCUG 2195 CAGCCCTG GGCTAGCTACAACGA AACCCCAG 4522 4657 GUUGCAGG G CUGGGCCU 2196 AGGCCCAG GGCTAGCTACAACGA CCTGCAAC 4523 4662 AGGGCUGG G CCUGUGCU 2197 AGCACAGG GGCTAGCTACAACGA CCAGCCCT 4524					
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4662 AGGGCUGG G CCUGUGCU 2197 AGCACAGG GGCTAGCTACAACGA CCAGCCCT 4524					
4666 CUGGGCCII G HGCHGIEG CONCACO CCCTACCTACA ACCACACA					
2198 CENERAL GOLFACHACHA AGGELLAG 4525					
	استنسا	20000000	2198	CURCAGO GOLINGLIACAACGA AGGUUCAG	4525

4668	GGGCCUGU G CUGUGGUC	2199	GACCACAG GGCTAGCTACAACGA ACAGGCCC	4526
4671	CCUGUGCU G UGGUCCUG	2200	CAGGACCA GGCTAGCTACAACGA AGCACAGG	4527
4674	GUGCUGUG G UCCUGGGG	2201	CCCCAGGA GGCTAGCTACAACGA CACAGCAC	4528
4682	GUCCUGGG G UGUCCAGG	2202	CCTGGACA GGCTAGCTACAACGA CCCAGGAC	4529
4684	CCUGGGGU G UCCAGGAC	2203	GTCCTGGA GGCTAGCTACAACGA ACCCCAGG	4530
4691	UGUCCAGG A CAGACGUG	2204	CACGTCTG GGCTAGCTACAACGA CCTGGACA	4531
4695	CAGGACAG A CGUGGAGG	2205	CCTCCACG GGCTAGCTACAACGA CTGTCCTG	4532
4697	GGACAGAC G UGGAGGGG	2206	CCCCTCCA GGCTAGCTACAACGA GTCTGTCC	4533
4705	GUGGAGGG G UCAGGGCC	2207	GGCCCTGA GGCTAGCTACAACGA CCCTCCAC	4534
4711	GGGUCAGG G CCCAGCAC	2208	GTGCTGGG GGCTAGCTACAACGA CCTGACCC	4535
4716	AGGGCCCA G CACCCCUG	2209	CAGGGGTG GGCTAGCTACAACGA TGGGCCCT	4536
4718	GGCCCAGC A CCCCUGCU	2210	AGCAGGGG GGCTAGCTACAACGA GCTGGGCC	4537
4724	GCACCCCU G CUCCAUGC	2211	GCATGGAG GGCTAGCTACAACGA AGGGGTGC	4538
4729	CCUGCUCC A UGCUGAAC	2212	GTTCAGCA GGCTAGCTACAACGA GGAGCAGG	4539
4731	UGCUCCAU G CUGAACUG	2213	CAGTTCAG GGCTAGCTACAACGA ATGGAGCA	4540
4736	CAUGCUGA A CUGUGGGA	2214	TCCCACAG GGCTAGCTACAACGA TCAGCATG	4541
4739	GCUGAACU G UGGGAAGC	2215	GCTTCCCA GGCTAGCTACAACGA AGTTCAGC	4542
4746	UGUGGGAA G CAUCCAGG	2216	CCTGGATG GGCTAGCTACAACGA TTCCCACA	4543
4748	UGGGAAGC A UCCAGGUC	2217	GACCTGGA GGCTAGCTACAACGA GCTTCCCA	4544
4754	GCAUCCAG G UCCCUGGG	2218	CCCAGGGA GGCTAGCTACAACGA CTGGATGC	4545
4762	GUCCCUGG G UGGCUUCA	2219	TGAAGCCA GGCTAGCTACAACGA CCAGGGAC	4546
4765	CCUGGGUG G CUUCAACA	2220	TGTTGAAG GGCTAGCTACAACGA CACCCAGG	4547
4771	UGGCUUCA A CAGGAGUU	2221	AACTCCTG GGCTAGCTACAACGA TGAAGCCA	4548
4777	CAACAGGA G UUCCAGCA	2222	TGCTGGAA GGCTAGCTACAACGA TCCTGTTG	4549
4783	GAGUUCCA G CACGGGAA	2223	TTCCCGTG GGCTAGCTACAACGA TGGAACTC	4550
4785	GUUCCAGC A CGGGAACC	2224	GGTTCCCG GGCTAGCTACAACGA GCTGGAAC	4551
4791	GCACGGGA A CCACUGGA	2225	TCCAGTGG GGCTAGCTACAACGA TCCCGTGC	4552
4794	CGGGAACC A CUGGACAA	2226	TTGTCCAG GGCTAGCTACAACGA GGTTCCCG	4553
4799	ACCACUGG A CAACCUGG	2227	CCAGGTTG GGCTAGCTACAACGA CCAGTGGT	4554
4802	ACUGGACA A CCUGGGGU	2228	ACCCCAGG GGCTAGCTACAACGA TGTCCAGT	4555
4809	AACCUGGG G UGUGUCCU	2229	AGGACACA GGCTAGCTACAACGA CCCAGGTT	4556
4811	CCUGGGGU G UGUCCUGA	2230	TCAGGACA GGCTAGCTACAACGA ACCCCAGG	4557
4813	UGGGGUGU G UCCUGAUC	2231	GATCAGGA GGCTAGCTACAACGA ACACCCCA	4558
4819	GUGUCCUG A UCUGGGGA	2232	TCCCCAGA GGCTAGCTACAACGA CAGGACAC	4559
4827	AUCUGGGG A CAGGCCAG	2233	CTGGCCTG GGCTAGCTACAACGA CCCCAGAT	4560
4831	GGGGACAG G CCAGCCAC	2234	GTGGCTGG GGCTAGCTACAACGA CTGTCCCC	4561
4835	ACAGGCCA G CCACACCC	2235	GGGTGTGG GGCTAGCTACAACGA TGGCCTGT	4562
4838			TCGGGGTG GGCTAGCTACAACGA GGCTGGCC	4563
4840			ACTCGGGG GGCTAGCTACAACGA GTGGCTGG	4564
4847			CCCTAGGA GGCTAGCTACAACGA TCGGGGTG	4565
4856	UCCUAGGG A CUCCAGAG		CTCTGGAG GGCTAGCTACAACGA CCCTAGGA	4566
4866	UCCAGAGA G CAGCCCAC		GTGGGCTG GGCTAGCTACAACGA TCTCTGGA	4567
4869			GCAGTGGG GGCTAGCTACAACGA TGCTCTCT	4568
4873			CAGGGCAG GGCTAGCTACAACGA GGGCTGCT	4569
4876			GCCCAGGG GGCTAGCTACAACGA AGTGGGCT	4570
4883	UGCCCUGG G CUCCACGG		CCGTGGAG GGCTAGCTACAACGA CCAGGGCA	4571
4888			GGCTTCCG GGCTAGCTACAACGA GGAGCCCA	4572
4894			TGAGGGG GGCTAGCTACAACGA TTCCGTGG	4573
4902	GCCCCUC A UGCCGCUA		TAGCGGCA GGCTAGCTACAACGA GAGGGGGC	4574
4904	CCCCUCAU G CCGCUAGG		CCTAGCGG GGCTAGCTACAACGA ATGAGGGG	4575
4907	CUCAUGCC G CUAGGCCU		AGGCCTAG GGCTAGCTACAACGA GGCATGAG	4576
4912	GCCGCUAG G CCUUGGCC	2250	GGCCAAGG GGCTAGCTACAACGA CTAGCGGC	4577
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4918	AGGCCUUG G CCUCGGGG	2251	CCCCGAGG GGCTAGCTACAACGA CAAGGCCT	4578
4927	CCUCGGGG A CAGCCCAG	2252	CTGGGCTG GGCTAGCTACAACGA CCCCGAGG	4579
4930	CGGGGACA G CCCAGCUA	2253	TAGCTGGG GGCTAGCTACAACGA TGTCCCCG	4580
4935	ACAGCCCA G CUAGGCCA	2254	TGGCCTAG GGCTAGCTACAACGA TGGGCTGT	4581
4940	CCAGCUAG G CCAGUGUG	2255	CACACTGG GGCTAGCTACAACGA CTAGCTGG	4582
4944	CUAGGCCA G UGUGUGGC	2256	GCCACACA GGCTAGCTACAACGA TGGCCTAG	4583
4946	AGGCCAGU G UGUGGCAG	2257	CTGCCACA GGCTAGCTACAACGA ACTGGCCT	4584
4948	GCCAGUGU G UGGCAGGA	2258	TCCTGCCA GGCTAGCTACAACGA ACACTGGC	4585
4951	AGUGUGUG G CAGGACCA	2259	TGGTCCTG GGCTAGCTACAACGA CACACACT	4586
4956	GUGGCAGG A CCAGGCCC	2260	GGGCCTGG GGCTAGCTACAACGA CCTGCCAC	4587
4961	AGGACCAG G CCCCCAUG	2261	CATGGGG GGCTAGCTACAACGA CTGGTCCT	4588
4967	AGGCCCCC A UGUGGGAG	2262	CTCCCACA GGCTAGCTACAACGA GGGGGCCT	4589
4969	GCCCCAU G UGGGAGCU	2263	AGCTCCCA GGCTAGCTACAACGA ATGGGGGC	4590
4975	AUGUGGGA G CUGACCCC	2264	GGGGTCAG GGCTAGCTACAACGA TCCCACAT	4591
4979	GGGAGCUG A CCCCUUGG	2265	CCAAGGGG GGCTAGCTACAACGA CAGCTCCC	4592
4989	CCCUUGGG A UUCUGGAG	2266	CTCCAGAA GGCTAGCTACAACGA CCCAAGGG	4593
4997	AUUCUGGA G CUGUGCUG	2267	CAGCACAG GGCTAGCTACAACGA TCCAGAAT	4594
5000	CUGGAGCU G UGCUGAUG	2268	CATCAGCA GGCTAGCTACAACGA AGCTCCAG	4595
5002	GGAGCUGU G CUGAUGGG	2269	CCCATCAG GGCTAGCTACAACGA ACAGCTCC	4596
5006	CUGUGCUG A UGGGCAGG	2270	CCTGCCCA GGCTAGCTACAACGA CAGCACAG	4597
5010	GCUGAUGG G CAGGGGAG	2271	CTCCCCTG GGCTAGCTACAACGA CCATCAGC	4598
5020	AGGGGAGA G CCAGCUCC	2272	GGAGCTGG GGCTAGCTACAACGA TCTCCCCT	4599
5024	GAGAGCCA G CUCCUCCC	2273	GGGAGGAG GGCTAGCTACAACGA TGGCTCTC	4600
5044	GAGGGAGG G UCUUGAUG	2274	CATCAAGA GGCTAGCTACAACGA CCTCCCTC	4601
5050	GGGUCUUG A UGCCUGGG	2275	CCCAGGCA GGCTAGCTACAACGA CAAGACCC	4602
5052	GUCUUGAU G CCUGGGGU	2276	ACCCCAGG GGCTAGCTACAACGA ATCAAGAC	4603
5059	UGCCUGGG G UUACCCGC	2277	GCGGGTAA GGCTAGCTACAACGA CCCAGGCA	4604
5062	CUGGGGUU A CCCGCAGA	2278	TCTGCGGG GGCTAGCTACAACGA AACCCCAG	4605
5066	GGUUACCC G CAGAGGCC	2279	GGCCTCTG GGCTAGCTACAACGA GGGTAACC	4606
5072	CCGCAGAG G CCUGGGUG	2279	CACCCAGG GGCTAGCTACAACGA CTCTGCGG	
5078	AGGCCUGG G UGCCGGGA	2281	TCCCGGCA GGCTAGCTACAACGA CCAGGCCT	4607
5080	GCCUGGGU G CCGGGACG	2282	CGTCCCGG GGCTAGCTACAACGA ACCCAGGC	4608
5086	GUGCCGGG A CGCUCCCC	2283	GGGGAGCG GGCTAGCTACAACGA CCCGGCAC	4609
5088	GCCGGGAC G CUCCCCGG	2284	CCGGGGAG GGCTACCTACAACGA GTCCCGGC	4610
5096	GCUCCCG G: UUUGGCUG		CAGCCAAA GGCTAGCTACAACGA CGGGGAGC	4611
5101	CCGGUUUG G CUGAAAGG	2285	CCTTTCAG GGCTAGCTACAACGA CAAACCGG	4612
5113	AAAGGAAA G CAGAUGUG	2286	CACATCTG GGCTAGCTACAACGA TTTCCTTT	4613
5117	GAAAGCAG A UGUGGUCA	2287	TGACCACA GGCTAGCTACAACGA CTGCTTTC	4614
5119	AAGCAGAU G UGGUCAGC	2288	GCTGACCA GGCTAGCTACAACGA ATCTGCTT	4615
5122	CAGAUGUG G UCAGCUUC	2289	GAAGCTGA GGCTAGCTACAACGA ATCTGCTT	4616
5126	UGUGGUCA G CUUCUCCA	2290	TGGAGAAG GGCTAGCTACAACGA CACATCTG	4617
5134	GCUUCUCC A CUGAGCCC	2291	GGGCTCAG GGCTAGCTACAACGA TGACCACA	4618
5139	UCCACUGA G CCCAUCUG	2292	CAGATGGG GGCTAGCTACAACGA TCAGTGGA	4619
5143	CUGAGCCC A UCUGGUCU	2293	AGACCAGA GGCTAGCTACAACGA TCAGTGGA  AGACCAGA GGCTAGCTACAACGA GGGCTCAG	4620
5148	CCCAUCUG G UCUUCCCG	2294	CGGGAAGA GGCTAGCTACAACGA GGGCTCAG	4621
5159	UUCCCGGG G CUGGGCCC	2295		4622
5164	GGGGCUGG G CCCCAUAG	2296	GGGCCCAG GGCTAGCTAGAACGA CCCGGGAA	4623
5169	UGGGCCCC A UAGAUCUG	2297	CTATGGGG GGCTAGCTACAACGA CCAGCCCC	4624
5173	CCCCAUAG A UCUGGGUC	2298	CAGATCTA GGCTAGCTACAACGA GGGGCCCA	4625
5173		2299	GACCCAGA GGCTAGCTACAACGA CTATGGGG	4626
	AGAUCUGG G UCCCUGUG	2300	CACAGGGA GGCTAGCTACAACGA CCAGATCT	4627
5185	GGGUCCCU G UGUGGCCC	2301	GGGCCACA GGCTAGCTACAACGA AGGGACCC	4628
5187	GUCCCUGU G UGGCCCCC	2302	GGGGGCCA GGCTAGCTACAACGA ACAGGGAC	4629

CCUCUCUG G CCCCCCUG	2303		4630
			4631
		CCTCGGCA GGCTAGCTACAACGA CAGACCAG	4632
		ATCCTCGG GGCTAGCTACAACGA ATCAGACC	4633
		CAGGGGTA GGCTAGCTACAACGA CCTCGGCA	4634
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CCAUCCCC G CACCCUGA	2319	TCAGGGTG GGCTAGCTACAACGA GGGGATGS	4647
AUCCCCGC A CCCUGACC	2320		
GCACCCUG A CCCACAAG	2321		4648
CCUGACCC A CAAGAGGG	2322	0001011	4649
CAAGAGGG A CUCCUGCU	2323		4650
GGACUCCU G CUGCCCAC	2324		4651
CUCCUGCU G CCCACCAG	2325		4652
UGCUGCCC A CCAGGCAU	2326		4653
CCCACCAG G CAUCCCUC	2327		4654
CACCAGGC A UCCCUCCA	2328	TGGAGGGA GGCTAGCTACAACGA GCCTGGTG	4655
	GCACCCUG A CCACAAG CCUGACCC A CAAGAGGG CAAGAGGG A CUCCUGCU GGACUCCU G CUGCCCAC CUCCUGCU G CCCACCAG UGCUGCCC A CCAGGCAU CCCACCAG G CAUCCCUC	CCCCCCUG G UCUGAUGC         2304           CUGGUCUG A UGCCGAGG         2305           GGUCUGAU G CCGAGGAU         2306           UGCCGAGG A UACCCCUG         2307           CCGAGGAU A CCCCUGCA         2308           AUACCCCU G CAAACUGC         2309           CCCUGCAA A CUGCCAAU         2310           UGCAAACU G CCAAUCCC         2311           AACUGCCA A UCCCAGAG         2312           CCCAGAGG A CAAGACUG         2313           AGGACAAG A CUGGGAAG         2314           ACUGGGAA G UCCCUGCA         2315           AAGUCCCU G CAGGGAGA         2316           CAGGGAGA G CCCAUCCC         2317           GAGAGCCC A UCCCCGCA         2318           CCAUCCCC G CACCCUGA         2319           AUCCCCGC A CCCUGAC         2320           GCACCCUG A CCCUGACC         2321           CCUGACCC A CAAGAGGG         2322           CAAGAGGG A CUCCUGCU         2323           CCUGACCC A CAAGAGGG         2324           CUCCUGCU G CUGCCCAC         2324           CUCCUGCU G CCCACCAG         2325           UGCUGCCC A CCAGGCAU         2326           CCCACCAG G CACCCAC         2325           UGCUGCCC A CCAGGCAU         2326	CCCCCCUG G UCUGAUGC 2304 GCATCAGA GGCTAGCTACAACGA CAGGGGGG CUGGUCUG A UGCCGAGG 2305 CCTCGGCA GGCTAGCTACAACGA CAGACCAG GGUCUGAU G CCGAGGAU 2306 ATCCTCGG GGCTAGCTACAACGA ATCAGACC UGCCGAGG A UACCCCUG 2307 CAGGGGTA GGCTAGCTACAACGA CCTCGGCA CCGAGGAU A CCCCUGCA 2308 TGCAGGGG GGCTAGCTACAACGA ATCCTCGG AACCCCU G CAAACUGC 2309 GCAGTTTG GGCTAGCTACAACGA ATCCAGGG CCCUGCAA A CUGCCAAU 2310 ATTGGCAG GGCTAGCTACAACGA ATGCAGGG UGCAAACU G CCAAACUCC 2311 GGGATTG GGCTAGCTACAACGA AGTTTGCA ACCCCUGCAA A UCCCAGAG 2312 CTCTGGGA GGCTAGCTACAACGA AGTTTGCA CCCAGAGG A CAAGACUG 2313 CAGTCTTG GGCTAGCTACAACGA AGTTTGCA ACGAAGAA A CUGCGAAG 2314 CTTCCCAG GGCTAGCTACAACGA CCTCTGGG AGGACAAG A CUGCGAAG CTTCCCCAG GGCTAGCTACAACGA CTTGTCCT ACGGGAAG A CUCCUGCA 2314 CTCCCCAG GGCTAGCTACAACGA CTTGTCCT ACGGGAAG A CUCCUGCA 2315 TGCAGGGA GGCTAGCTACAACGA TTCCCAGT AGGACACGA G CCCAUCCC 2317 GGGATGG GGCTAGCTACAACGA AGGACTT CAAGGAAG CCCAUCCC 2317 GGGATGG GGCTAGCTACAACGA TCCCCTG GAGAGCCC A UCCCCGCA 2318 TGCGGGGA GGCTAGCTACAACGA TCCCCTG CAACGCCC A CCCUGAC 2319 TCAGGGTG GGCTAGCTACAACGA GGGCTCTC CCAUCCCC G CACCCUGA 2319 TCAGGGTG GGCTAGCTACAACGA GGGGTTGC CCAUCCC A CAAGAGGG 2321 CTTGTGGG GGCTAGCTACAACGA GGGGTTGC CCCACCCC A CAAGAGGG 2322 CCCTCTTG GGCTAGCTACAACGA CAGGGTGC CCCACCCC A CAAGAGGG 2322 CCCTCTTG GGCTAGCTACAACGA CAGGGTGC CAAGACCUC A CAAGAGGG 2322 CCCTCTTG GGCTAGCTACAACGA CCGCTTTG CAAGAGGG A CUCCUGCU 2323 AGCAGGAG GGCTAGCTACAACGA CCTCTTG CAAGAGGG A CUCCUGCU 2323 AGCAGGAG GGCTAGCTACAACGA CCCTCTTG GGACUCCU G CUGCCCAC 2324 GTGGGCAG GGCTAGCTACAACGA AGGAGTCC CACCCUGCU G CCCACCAG 2324 GTGGGCAG GGCTAGCTACAACGA AGGAGTCC CUCCUGCU G CCCACCAG 2325 CTGGTGGG GGCTAGCTACAACGA AGGAGTCC CUCCUGCU G CCCACCAG 2324 GTGGGCAG GGCTAGCTACAACGA AGGAGTCC CCCCCCC A CAAGAGGG CACCCUG CCCACCAG CCCCCCCCCC

Input Sequence = HUMRasH\_mRNA. Cut Site = R/Y
Arm Length = 8. Core Sequence = GGCTAGCTACAACGA
HUMRasH\_mRNA (Human c-Ha-ras1 proto-oncogene, spliced mRNA sequence; 5336 nt)

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Table IV: Human HER2 DNAzyme and Substrate Sequence

Pos	Substrate	Seq	DNAzyme	Seq
		ID		ID
9	AAGGGGAG G UAACCCUG	4656	CAGGGTTA GGCTAGCTACAACGA CTCCCCTT	5644
12	GGGAGGUA A CCCUGGCC	4657	GGCCAGGG GGCTAGCTACAACGA TACCTCCC	5645
18	UAACCCUG G CCCCUUUG	4658	CAAAGGG GGCTAGCTACAACGA CAGGGTTA	5646
27	CCCCUUUG G UCGGGGCC	4659	GGCCCCGA GGCTAGCTACAACGA CAAAGGGG	5647
33	UGGUCGGG G CCCCGGGC	4660	GCCCGGG GGCTAGCTACAACGA CCCGACCA	5648
40	GGCCCGG G CAGCCGCG	4661	CGCGGCTG GGCTAGCTACAACGA CCGGGGCC	5649
43	CCCGGGCA G CCGCGCGC	4662	GCGCGCG GGCTAGCTACAACGA TGCCCGGG	5650
46	GGGCAGCC G CGCGCCCC	4663	GGGGCGCG GGCTAGCTACAACGA GGCTGCCC	5651
48	GCAGCCGC G CGCCCCUU	4664	AAGGGCG GGCTAGCTACAACGA GCGGCTGC	5652
50	AGCCGCGC G CCCCUUCC	4665	GGAAGGG GGCTAGCTACAACGA GCGCGGCT	5653
60	CCCUUCCC A CGGGGCCC	4666	GGGCCCCG GGCTAGCTACAACGA GGGAAGGG	5654
65	CCCACGGG G CCCUUUAC	4667	GTAAAGGG GGCTAGCTACAACGA CCCGTGGG	5655
72	GGCCCUUU A CUGCGCCG	4668	CGGCGCAG GGCTAGCTACAACGA AAAGGGCC	5656
75	CCUUUACU G CGCCGCGC	4669	GCGCGGCG GGCTAGCTACAACGA AGTAAAGG	5657
77	UUUACUGC G CCGCGCGC	4670	GCGCGCGG GGCTAGCTACAACGA GCAGTAAA	5658
80	ACUGCGCC G CGCGCCCG	4671	CGGGCGCG GGCTAGCTACAACGA GGCGCAGT	5659
82	UGCGCCGC G CGCCCGGC	4672	GCCGGGCG GGCTAGCTACAACGA GCGGCGCA	5660
84	CGCCGCGC G CCCGGCCC	4673	GGGCCGGG GGCTAGCTACAACGA GCGCGGCG	5661
89	CGCGCCCG G CCCCCACC	4674	GGTGGGG GGCTAGCTACAACGA CGGGCGCG	5662
95	CGGCCCCC A CCCCUCGC	4675	GCGAGGGG GGCTAGCTACAACGA GGGGGCCG	5663
102	CACCCCUC G CAGCACCC	4676	GGGTGCTG GGCTAGCTACAACGA GAGGGGTG	5664
105	CCCUCGCA G CACCCCGC	4677	GCGGGGTG GGCTAGCTACAACGA TGCGAGGG	5665
107	CUCGCAGC A CCCCGCGC	4678	GCGCGGG GGCTAGCTACAACGA GCTGCGAG	5666
112	AGCACCCC G CGCCCGC	4679	GCGGGCG GGCTAGCTACAACGA GGGGTGCT	5667
114	CACCCGC G CCCCGCGC	4680	GCGCGGG GGCTAGCTACAACGA GCGGGGTG	5668
119	CGCGCCCC G CGCCCUCC	4681	GGAGGGCG GGCTAGCTACAACGA GGGGCGCG	5669
121	CGCCCGC G CCCUCCCA	4682	TGGGAGGG GGCTAGCTACAACGA GCGGGGCG	5670
130	CCCUCCCA G CCGGGUCC	4683	GGACCCGG GGCTAGCTACAACGA TGGGAGGG	5671
135	CCAGCCGG G UCCAGCCG	4684	CGGCTGGA GGCTAGCTACAACGA CCGGCTGG	5672
140	CGGGUCCA G CCGGAGCC	4685	GGCTCCGG GGCTAGCTACAACGA TGGACCCG	5673
146	CAGCCGGA G CCAUGGGG	4686	CCCCATGG GGCTAGCTACAACGA TCCGGCTG	5674
149	CCGGAGCC A UGGGGCCG	4687	CGGCCCCA GGCTAGCTACAACGA GGCTCCGG	5675
154	GCCAUGGG G CCGGAGCC	4688	GGCTCCGG GGCTAGCTACAACGA CCCATGGC	5676
160	GGGCCGGA G CCGCAGUG	4689	CACTGCGG GGCTAGCTACAACGA TCCGGCCC	5677
163	CCGGAGCC G CAGUGAGC	4690	GCTCACTG GGCTAGCTACAACGA GGCTCCGG	5678
166	GAGCCGCA G UGAGCACC	4691	GGTGCTCA GGCTAGCTACAACGA TGCGGCTC	5679
170	CGCAGUGA G CACCAUGG	4692	CCATGGTG GGCTAGCTACAACGA TCACTGCG	5680
172	CAGUGAGC A CCAUGGAG	4693	CTCCATGG GGCTAGCTACAACGA GCTCACTG	5681
175	UGAGCACC A UGGAGCUG	4694	CAGCTCCA GGCTAGCTACAACGA GGTGCTCA	5682
180	ACCAUGGA G CUGGCGGC	4695	GCCGCCAG GGCTAGCTACAACGA TCCATGGT	5683
184	UGGAGCUG G CGGCCUUG	4696	CAAGGCCG GGCTAGCTACAACGA CAGCTCCA	5684
187	AGCUGGCG G CCUUGUGC	4697	GCACAAGG GGCTAGCTACAACGA CGCCAGCT	5685
192	GCGGCCUU G UGCCGCUG	4698	CAGCGGCA GGCTAGCTACAACGA AAGGCCGC	5686
194	GGCCUUGU G CCGCUGGG	4699	CCCAGCGG GGCTAGCTACAACGA ACAAGGCC	5687
197	CUUGUGCC G CUGGGGGC	4700	GCCCCAG GGCTAGCTACAACGA GGCACAAG	5688
204	CGCUGGGG G CUCCUCCU	4701	AGGAGGAG GGCTAGCTACAACGA CCCCAGCG	5689
214	UCCUCCUC G CCCUCUUG	4702	CAAGAGGG GGCTAGCTACAACGA GAGGAGGA	5690

222         GCCCCCGGG         4703         CCGGGGGG         GCTCGCGG         GCTCGCGG         GCTCGCGGG         GCTCGCGGG         GCTCGCGGG         GCTCGCGGGGG         GCTCGCGGG         GCTCGCGGGGG         GCTCGCGG         TOTGGTG         GCTCGCGG         GCTCGCCCAA         GCTCGCGG         TOTGGTG         GCTCGCCCAA         ACCCCAACU         TOTGCCGGT         GCCCCCCCAAACAAACAA         TOTGCCGGTG         GCTCACCTACAACAAAACAAACAAACAAAACAAACAAAACAAAACAAAA	·
2325 CCCGGAGC G CGAGCACC 4705 GGTGCTGC GGCTAGCTACAACGA GGCTCCGG 2329 AGCCGCAG G CACCCAAG 4705 CTTGGGTG GGCTAGCTACAACGA TCGCGGCT 247 GCCGCAGC A CCCCAAGU 4707 CACTTGGG GGCTAGCTACAACGA TCGCGGCT 247 GCACCCAA G UGUGCACCG 4708 GGTGCACA GGCTAGCTACAACGA TCGCGGCG 247 GCACCCAA G UGUGCACCG 4708 GGTGCACA GGCTAGCTACAACGA TTGGGTGC 249 ACCCAAGUG UGCACCGG 4709 CCGGTGCA GGCTAGCTACAACGA ACTTGGGT 251 CCAAGUGU G CACCGGCA 4710 TGCCGGTG GGCTAGCTACAACGA ACTTGGGT 253 AAGUGUGC A CCGGCACA 4711 TGTCCGG GGCTAGCTACAACGA ACTTGGT 257 GUGCACCG C CACAGACA 4711 TGTCCGG GGCTAGCTACAACGA CACCTTGG 258 GCACCGGC A CAGACAA 4712 TGTCTGGT GGCTAGCTACAACGA GCCACCTT 259 GCACCGGC A CAGACAA 4711 TGTCCGG GGCTAGCTACAACGA GCCGCTGC 259 GCACCGGC A CAGACAAU 4713 CATGTCT GGCTAGCTACAACGA GCCGGTGC 265 GCACAGAC A UGAAGCUG 4715 CAGCTTCA GGCTAGCTACAACGA GCGGGTGC 265 GCACAGAC A UGAAGCUG 4715 CAGCTTCA GGCTAGCTACAACGA GCTGCTCT 270 GACAUGAA G CUGCGGCU 4716 ACCGGCAG GGCTAGCTACAACGA TCTGTGC 271 AUGAACCU G CGCCUCCC 4718 GCAGCTACAACGA TCTCATGTC 272 AAGCUGCG G CUCCCUGC 4718 GCAGGGAG GGCTAGCTACAACGA TCTCATGTC 273 AUGAACCU G CUCCCUGC 4718 GCAGGGAG GGCTAGCTACAACGA ACTCTCTCAT 283 GGCUCCCU G CCAGUCCC 4719 GCAGCTGC GGCTAGCTACAACGA ACGACTTCAT 287 CCCUGCCA G UCCCGGA 4720 GCAGCTCAACACA AGGGAGCT 287 CCCUGCCA G CCCACCUG 4721 CAGGTGGG GGCTAGCTACAACGA ACGACTCAA 287 CCCUGCCA G CCCACCUG 4721 CAGGTGGG GGCTAGCTACAACGA ACGAGGGG 287 CCCUGCCA GCCGCA 4722 TGTCCGGG GGCTAGCTACAACGA ACGAGGGC 289 GUCCCGAG A CCUCCCC 4723 GGGACTGG GGCTAGCTACAACGA AGGGAGC 300 CUGCACAC A CCUCGCC 4721 CAGGTGGG GGCTAGCTACAACGA AGGGAGC 301 CACCAGG C CACCCUG 4721 CAGGTGGG GGCTAGCTACAACGA GGGTCTCCAA 302 CCCCUGCA A CCUCGCC 4723 GGGAGCTG GGCTAGCTACAACGA GGGTCCTCAA 303 CCCCCUC A CCUCGCC 4723 GGGAGCTG GGCTAGCTACAACGA GGGTTCCCA 304 CCCCGG A CCUCCCC 4724 GGGAGCAG GGCTAGCTACAACGA GGGTTCCAA 305 CCACCUG A CCUCGCC 4724 GGGAGCAG GGCTAGCTACAACGA GGGTGCTACAACGA ACGCTGG 307 ACCUGGAC A CCUCCCG 4724 GGGAGCAG GGCTAGCTACAACGA ACGCCTGG 323 CCACCUCU A CCAGGGGC 4724 GCGGAGCGAGCTACAACGA AGGAGCAGGAGAA ACCACCTGG 324 CAGGGGG G CUACCCUC 4725 GGGAGCGAGCTA	5691
239 AGCCGGG G CACCCARG  4706 CTTGGGTG GGCTAGCTACACGA TGGCGGCT  241 CCGCGRGC A CCCAARGU 4707 CACTTGGG GGCTAGCTACAACGA GCTGGGG  247 GCACCCAA G UGUGCACC  4708 GGTGCACA GGCTAGCTACAACGA ATTGGGTGC  249 ACCCAARGU G UGUGCACC  4709 CCGGTGCA GGCTAGCTACAACGA ACTTGGGT  251 CCAAGUGU G CACCGGCA 4710 TGCCGGT GGCTAGCTACAACGA ACTTGGGT  253 AAGUGUGC A CCGGCACA 4711 TGTGCCGG GGCTAGCTACAACGA ACTTGGT  255 AAGUGUGC A CCGGCACA 4711 TGTCCCGG GGCTAGCTACAACGA ACTTGGT  257 GUGCACCG G CACAGACA 4711 TGTCCCGG GGCTAGCTACAACGA CGGTGCAC  259 GCACCGGC A CAGACACA 4711 TGTCCCGG GGCTAGCTACAACGA CGGTGCAC  259 GCACCGGC A CAGACACA 4711 TGTCCGG GGCTAGCTACAACGA CGGTGCAC  259 GCACCGGC A CAGACACA 4712 TGTCTGG GGCTAGCTACAACGA CGGTGCC  259 GCACCGGC A CAGACACA 4711 GCTCCATG GGCTAGCTACAACGA CGGTGCC  261 GGCACACG A CAGACACA 4712 TGTCTGG GGCTAGCTACAACGA GCTGTGCCG  262 GCACAGAC A UGAAGCUG 4715 CAGCTTCA GGCTAGCTACAACGA GTTCTATGC  270 GACAUGAA G CUGCGGCU 4716 AGCCGCAG GGCTAGCTACAACGA GTCTATGC  271 AUGAAGCU G CGGCUCCC 4717 GGGAGCCG GGCTAGCTACAACGA ACTTCATGTC  272 AAGCUCCC G CCAGUCCC 4718 GCAGGGAG GGCTAGCTACAACGA ACCTACTACACACACACACACACACACACACACACACA	5692
241         CCGCGAGG         CCCCANGU         4700         CACTTGGG         GCTAGCTACAGG         GCTGCCAGG         GCTGCCAGG         GCTGCCAGG         GCTGCCAGG         GCGGTGCCAGG         TOGGTGCAGGG         GCGGTGCAGGG         TOGGTGCAGG         GCGGTGCAGGGG         TOGGTGCAGGG         GCGGTGCAGGGG         ACTOGGGT         GCGGTGCAGGGG         GCGGTGCAGGGGG         GCGGTGCAGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG	5693
247 GCACCCAA G UGUGCACC 4708 GGTGCACA GGCTAGCTACAACGA TTGGGTGC 249 ACCCAAGU G UGCACCGG 4709 CCGGTGCA GGCTAGCTACAACGA ACTTGGGT 251 CCAAGUUG G CACCGGCA 4710 TGCCGGTG GGCTAGCTACAACGA ACCTTGGT 253 AAGUGUGC A CCGGCAA 4711 TGTGCCGG GGCTAGCTACAACGA ACCTTGG 253 AAGUGUGC A CCGGCAA 4711 TGTGCCGG GGCTAGCTACAACGA CACCTTG 254 GUGCACCG G CACAGACA 4712 TGTCTGTG GGCTAGCTACAACGA GCCGGTGC 255 GCACCGGC A CAGACAUG 4713 CATTCTG GGCTAGCTACAACGA GCCGGTGC 256 GCACAGAC A UGAAGCUG 4713 CATTCTG GGCTAGCTACAACGA GCCGGTGC 266 GCACAGAC A UGAAGCUG 4714 GCTTCATG GGCTAGCTACAACGA CTTCTGCG 267 GACAUGAA G CUGCGGCU 4716 ACCCGGAG GGCTAGCTACAACGA TTCATGTC 270 GACAUGAA G CUGCCGCC 4717 GGGAGGCG GGCTAGCTACAACGA TTCATGTC 273 AUGAAGCU G CGCUCCC 4718 GCGAGGGG GGCTAGCTACAACGA TTCATGTC 274 AAGUGGG G CUCCCUGC 4718 GCGAGGAG GGCTAGCTACAACGA TTCATGTC 275 AAGUGAG C CCGCGCC 4719 GGGAGCG GGCTAGCTACAACGA ACGCACCTT 276 CCCUGGCCA G UCCCGAGA 4720 TCTCGGGA GGCTAGCTACAACGA TGCAGGG 279 GCCCGGAG A CCCCGAGGA 4720 TCTCGGGA GGCTAGCTACAACGA TGCAGGG 279 GCACACCUG A CCUGGAGA 4722 TCTCGGGA GGCTAGCTACAACGA TGCAGGG 279 GCACACCC A CCUGGACA 4722 TCTCGGGA GGCTAGCTACAACGA TCGAGGGC 279 CAGACCC A CCUGGACA 4722 TGTCCAGG GGCTAGCTACAACGA CTCGGGG 279 CAGACCC A CCUGGACA 4722 TGTCCAGG GGCTAGCTACAACGA CTCGGGTCC 270 ACCUGGA A UGCUCCGC 4724 GCGGAGCA GGCTAGCTACAACGA CCGGGTCCC 271 TGTCCAGG GGCTAGCTACAACGA CTCGGGT 270 ACCUGGAC A UGCUCCGC 4723 GCAGCCTGCACACACA GGGTCCC 271 TGTCCAGG GGCTAGCTACAACGA CCGGGTCCC 272 TGTCCAGG GGCTAGCTACAACGA CCGGGTCCC 273 TGTCCAGG GGCTAGCTACAACGA CCGGGGTCCC 274 TGTCCAGG GGCTAGCTACAACGA CCGGGTCCC 275 TGTCCAGG GGCTAGCTACAACGA CCGGGTCCCC 277 TGTCCAGG GGCTAGCTACAACGA CCGGGTCCC 277 TGTCCAGG GGCTAGCTACAACGA CCGGGTCCCC 277 TGTCCAGG GGCTAGCTACAACGA CCGGGTCCCCCCCCCC	5694
249 ACCCARGU G UGCACCGG 4709 CCGGTGCA GGCTAGCTACAGA ACTTISGGT 251 CCARGUGU G CACCGGCA 4710 TGCCGGTG GGTAGCTACAACGA ACTTISGGT 253 AAGUGUGC A CCGGCACA 4711 TGTGCCGG GGTAGCTACAACGA CACACTTG GGCAGC GUGCACCG CACAGACA 4711 TGTGCCGG GGTAGCTACAACGA CACACTTG GGCACCGG GUGCACCG GCACACCTT TGTGCCGG GGCAGCTACAACGA CACGGCACACCTT TGTGCCGG GGCAGCTACAACGA CACGGCACACCTT CACACGA CAUGAAGC 4711 CATTCTCG GGCTAGCTACAACGA CGGTGCAC 4712 TGTCTGTG GGCTAGCTACAACGA CGGTGCCC 4714 GGTTGCTAG GGCTAGCTACAACGA CTGTGCCG CACACGA CAUGAAGC 4715 CAGCTTCAT GGCTAGCTACAACGA CTGTGCCG CACACGA CAUGAAGC 4716 AGCCCCAG GCTAGCTACAACGA CTGTGCC 4717 AGCCGCAG GCTAGCTACAACGA CTGTGCC 4718 GCAGGACA GCACACTT TCTC CACACACACA CUCCCCC 4719 GGAGAGCC GGCTAGCTACAACGA CTGTGCC 4718 GCAGGAGC GGCTAGCTACAACGA CGCACTT CAT CACACACCA CCCCCCACACCA 4720 TGCAGGAGG GGCTAGCTACAACGA CGCACCTT CACACACACA ACCCCCCCCC 4719 GGAGAGCC GGCTAGCTACAACGA CGCACCTT CACACACCACCACCACCACCACCACCACCACCACCACCA	5695
STATE	5696
253 AAGUGUGC A CCGGCACA 4711 TGTGCCGG GGCTAGCTACAACGA GCACCTT 257 GUGCACCG G CACAGACA 4712 TGTCTGTG GGCTAGCTACAACGA CGGTGCAC 259 GCACCGGC A CAGACAGA 4712 TGTCTGTG GGCTAGCTACAACGA CGGTGCAC 259 GCACCGGC A CAGACAGA 4712 CTGTCTGTG GGCTAGCTACAACGA CGCGGTGC 265 GCACAGAC A UGAAGCU 4714 GCTTCATG GGCTAGCTACAACGA CTGTGCCG 265 GCACAGAC A UGAAGCU 4715 CAGCTTCA GGCTAGCTACAACGA CTGTGCCG 270 GACAUGAA G CUGCGGCU 4716 AGCCGCAG GGCTAGCTACAACGA GTCTGTGC 273 AUGAAGCU G CGGCUCCC 4717 GGGAGCCG GGCTAGCTACAACGA TGTGTGC 274 AAGCUGCG G CUCCCUGC 4718 GGCAGCG GGCTAGCTACAACGA TGTGTGT 275 AAGCUGCG G CCAGUCCC 4719 GGGAGCCG GGCTAGCTACAACGA CGCACCTT 287 CCCUGCCA G CCAGUCCC 4719 GGGAGCCG GGCTAGCTACAACGA CGCACCTT 287 CCCUGCCA G CCAGUCCC 4719 GGGAGCCG GGCTAGCTACAACGA CGCACCTT 287 CCCUGCAGA 4720 TCTCCGGA GGCTAGCTACAACGA CGCACGTT 287 CCCUGGCA UCCCGAGA 4720 TCTCCGGA GGCTAGCTACAACGA CGCACGTG 287 CCCUGGAC A CCUGGACA 4721 CAGGTGGG GGCTAGCTACAACGA CGCACGGC 287 CCCUGGA A CAUGCUCC 4721 CAGGTGGG GGCTAGCTACAACGA CGCAGCGC 287 CACCUGG A CAUGCGC 4722 GGGAGCG GGCTAGCTACAACGA GGGTCACCACGG 307 ACCUGGAC A UGCUCCGC 4723 GGAGCAG GGCTAGCTACAACGA GGGTCACA 307 ACCUGGAC A UGCUCCGC 4724 GCGGAGCG GGCTAGCTACAACGA GTCCAGGTG 307 ACCUGGAC A UGCUCCGC 4724 GCGGAGCG GGCTAGCTACAACGA ATTCCCAG 309 CUGGACAU G CUCCGCCA 4725 TGGCGGAG GGCTAGCTACAACGA ATTCCCAG 314 CAUGCUCC G CCACCUCU 4726 AGAGGTGG GGCTAGCTACAACGA ATTCCCAG 317 GGUCCGCC A CCUULACC 4727 GGTAGAGG GGCTAGCTACAACGA ATTCCCAG 323 CCACCUCU A CCAGGGCU 4728 AGCCCTGG GGCTAGCTACAACGA AGAGGTGG 323 CCACCUCU A CCAGGGCU 4728 AGCCCTGG GGCTAGCTACAACGA AGAGGTGG 323 CCACCUCU A CCAGGGCU 4729 CCTGGCAG GCTAGCTACAACGA AGAGGTGG 323 CCACCUCU A CCAGGGGCA 4730 CCACCGTG GGCTAGCTACAACGA ACCCCTGG 337 GCUGCCAG G UGUCCAGG 4731 CTGCACCA GGCTAGCTACAACGA ACCCCTGG 337 GCUGCCAG G UGUCCAGCA 4731 TTGCTCAG GGCTAGCTACAACGA ACCCCTGG 340 GCCACCAG A UGCUCCC 4731 TGGGAGG GGCTAGCTACAACGA ACCCCTGG 350 ACCUACCU G CCAGGGGA 4731 CTGCACCA GGCTAGCTACAACGA ACCCCTGG 351 ACCUGCCA A CCAACCU 4731 TGGGCAG GGCTAGCTACAACGA ACCCCTGG 352 ACCUCCCA A CCAACCU 4731 TGGGCAG GGCTAGCTACAACG	5697
257	5698
259 GCACGGG A CAGACAUG 4713 CATGTCTG GGCTACAACGA GCCGGTGC 263 CGGCACAG A CAUGAAGC 4714 GCTTCATG GGCTAGCTACAACGA CTGTGCCG 265 GCACAGAC A UGAAAGCU 4715 CAGCTTCA GGCTAGCTACAACGA CTGTGCCG 270 GACAUGAA G CUGCGGCU 4716 AGCCGCAG GGCTAGCTACAACGA TTCATGTC 273 AUGAAGCU G CGGCUCCC 4717 GGGAGGGG GGCTAGCTACAACGA ACGTTCAT 276 AAGCUGCG G CUCCCUGC 4718 GCGAGGGG GGCTAGCTACAACGA ACGTTCAT 283 GGCUCCU G CCAGUCCC 4719 GGGAGCGG GGCTAGCTACAACGA AGCTTCAT 283 GGCUCCU G CCAGUCCC 4719 GGGAGCGG GGCTAGCTACAACGA AGGTGCT 286 GUCCCGA G UCCCGAGA 4720 TCTCGGGA GGCTAGCTACAACGA AGGAGCC 287 CCCUGCCA G UCCCGAGA 4720 TCTCGGGA GGCTAGCTACAACGA AGGAGCC 289 CGAGACCC A CCUGACA 4721 CAGGTGGG GGCTAGCTACAACGA CGGGGG 299 CGAGACCC A CCUGACA 4722 TGTCCAGG GGCTAGCTACAACGA CGAGGGG 305 CCACCUGG A CAUGCUCC 4723 GGAGCATG GGCTAGCTACAACGA CCAGGTGG 307 ACCUGGAC A UGCUCCGC 4724 GCGGAGCA GGCTAGCTACAACGA CCAGGTGG 308 CUGGACAU G CUCCGCCA 4725 TGGCGGAG GGCTAGCTACAACGA GGCTCAGGT 314 CAUGCUCC G CCACCUUU 4726 AGAAGTGG GGCTAGCTACAACGA GTCCAGGT 329 CUACCAGG G CACCUCUU 4726 AGAAGTGG GGCTAGCTACAACGA GGAGCATG 321 CCACCUGU A CCAGGGCU 4722 GGTAAGG GGCTAGCTACAACGA GGAGCATG 322 CCACCUGU A CCAGGGCU 4728 AGCCCTGG GGCTAGCTACAACGA AGGAGCGG 329 CUACCAGG G CUGCAGG 4729 CCTGGCAG GGCTAGCTACAACGA AGCGTGG 329 CUACCAGG G CUGCAGG 4729 CCTGGCAG GGCTAGCTACAACGA AGCGTGG 320 CCAGGGGU G CCAGGUGG 4730 CCACCTGG GGCTAGCTACAACGA AGCCCTGG 321 CCAGGGCU G CCAGGUGG 4730 CCACCTGG GGCTAGCTACAACGA AGCCCTGG 322 CCAGGGGU G CCAGGUGA 4731 CTCCTGCA GGCTAGCTACAACGA ACCACCTGG 324 CAGGUGGU A CCAGGGAA 4732 TCCCTGG GGCTAGCTACAACGA ACCACCTGG 325 CCAGGGGU G CAGGGAAA 4733 TTCCCTG GGCTAGCTACAACGA ACCACCTGG 326 CCAGGGGA A CCUACCU 4736 CAGGTGG GGCTAGCTACAACGA ACCACCTG 327 AACCUGCA A CUCACCU 4731 TTCCCTG GGCTAGCTACAACGA ACCACCTG 328 CCAGGGGA A CCUACCU 4731 TTCCCTG GGCTAGCTACAACGA ACCACCTG 329 CCACCAAU G CCAGGCU 4731 TTCCAGG GGCTAGCTACAACGA ACCACCTG 327 AACCUGCA A CUCACCU 4731 TTCCAGG GGCTAGCTACAACGA ACCACCTG 328 ACCACCAC A CCAAUGCC 4739 GGCTAGCTACAACGA ACCACCTG 329 CCACCAAU G CCAGGCU 4741 AGGACGG GGCTAGCTACAACGA ACCACCTG 329 CCA	5699
263         COGCACAG A CAUGAAGC         4714         GCTTCATG GGCTACAACGA CTGTGCG           265         GCACAGAC A UGAAGCUG         4715         CAGCTTCA GGCTACAACGA CTCTGTGC           270         GACAUGAA G CUGCGGCU         4716         AGCCGCAG GGCTAGCTACAACGA TCCATGTC           270         GACAUGAA G CUGCCUGC         4717         GGGAGCCG GGCTAGCTACAACGA AGCTTCAT           273         ANGAGCUG G CUCCUGC         4718         GCAGGGAG GGCTAGCTACAACGA AGCTTCAT           276         AAGCUGCG G CUCCCUGC         4719         GGGAGCCG GGCTAGCTACAACGA AGCGAGGG           287         CCCUGCCA G UCCCAGAA         4720         TCTCGGGA GGCTAGCTACAACGA TGGCAGGG           287         CCCUGCCA G CCCUGGAA         4721         CAGGTGG GGCTAGCTACAACGA TGGGAGC           299         CGAGACCC A CCUGGACA         4722         TGTCCAGG GGCTAGCTACAACGA CTGGGAC           305         CCACCUGG A CAUGCUCC         4723         GGAGCATG GGCTACCTACAACGA GGCTAGCTACAACGA           307         ACCUGGAC A UGCUCCC         4724         GCGAGCAG GCTACCTACAACGA ATGTCCAACGA           314         CAUGCUCC G CCACCUCU         4725         TGGCGGAG GGCTACCTACAACGA ATGTCCAACGA           317         GCUCCCACC A CCUCUACC         4727         AGCCCTGG GGCTACCTACAACGA ATGAGCACCAGGAAC           323         CCACGGG G CUGCCAGG         4728	5700
265 GCACAGAC A UGAAGCUG 4715 CAGCTTCA GGCTAGCTACAACGA GTCTGTCC 270 GACAUGAA G CUGCGGCU 4716 AGCCGCAG GGCTAGCTACAACGA TTCATGTC 273 AUGAAGCU G CGGCUCC 4717 GGGAGCCG GGCTAGCTACAACGA TTCATGTC 273 AUGAAGCU G CGGCUCC 4718 GCAGGCAG GGCTAGCTACAACGA AGCTTCAT 276 AAGCUGGG G CUCCCUGC 4718 GCAGGCAG GGCTAGCTACAACGA AGGTTCAT 277 AUGAAGCU G CCAGUCCC 4718 GCAGGCAG GGCTAGCTACAACGA AGGTCAC 278 GGCUCCU G CCAGUCCC 4719 GGGACTG GGCTAGCTACAACGA AGGAGCC 278 CCCUGCCA G UCCCGAGA 4720 TCTCGGGA GGCTAGCTACAACGA AGGAGCC 279 CCCUGCCA G UCCCGAGA 4721 CAGGTGGG GGCTAGCTACAACGA CTCGGGAC 279 CCCUGCA A CCUGGACA 4722 TGTCCAGG GGCTAGCTACAACGA CTCGGGAC 279 CCACCUGG A CAUGCUCC 4723 GGAGACCC A CCUGGACA 4722 TGTCCAGG GGCTAGCTACAACGA CCAGGTGG 280 CCACCUGG A CAUGCUCC 4723 GGAGACA GGCTAGCTACAACGA CCAGGTGG 307 ACCUGGACA UGCUCCGC 4724 GCGGAGCA GGCTAGCTACAACGA CCAGGTGG 308 CUGGACAU G CUCCGCCC 4725 TGGCGGAG GGCTAGCTACAACGA ATGTCCAG 314 CAUGCUCC G CCACCUCU 4726 AGAGGTGG GGCTAGCTACAACGA ATGTCCAG 317 GGUCCGCC A CCUCUACC 4727 GGTAGAGG GGCTAGCTACAACGA AGGATGG 323 CCACCUCU A CCAGGCCU 4728 AGCCTGG GGCTAGCTACAACGA GGAGCATG 323 CCACCUCU A CCAGGCU 4728 AGCCTGG GGCTAGCTACAACGA AGGGTGG 329 CUACCAGG G CUGCCCAG 4729 CCTGGCAG GGCTAGCTACAACGA ACGATGG 320 CUACCAGG G CUGCCCAG 4729 CCTGGCAG GGCTAGCTACAACGA ACGATGG 321 CUACCAGG G CUGCCCAG 4729 CCTGGCAG GGCTAGCTACAACGA ACGATGG 322 CUACCAGG G CUGCCCAG 4730 CCACCCTGG GGCTAGCTACAACGA ACGCTGGC 337 GCUGCCAG G UGGUGCAG 4731 CTCCCTGC AGCTAGCTACAACGA ACCCTGG 337 GCUGCCAG G UGGUGCAG 4731 CTCCCTGC AGCTAGCTACAACGA ACCCTGG 340 GCCAGGUG G UGCAGGGA 4731 CTCCCTGC AGCTAGCTACAACGA ACCCTGG 340 GCCAGGUG G CAGGGAAA 4733 TTTCCCTG GGCTAGCTACAACGA ACCCTGG 350 GCAGGGAA CCUACCUA 4735 TAGGTGAGCTACAACGA ACCACGGC 351 AACCUGCC A CCUACCCUA 4735 TAGGTGAG GGCTAGCTACAACGA ACCACGGT 352 ACCUCCC A CCUACCCUA 4735 TAGGTGAG GGCTAGCTACAACGA ACCACGGC 353 ACCUCCC G CCACACAA 4736 TTCCCTGC GGCTAGCTACAACGA ACCACGGT 353 ACCUGCC G CCACACAA 4736 TTGGTGG GGCTAGCTACAACGA ACCACGGT 351 ACCUGCC G CCACACGC 4739 GGCTAGCTACAACGA ACCACGGT 352 ACCACCUCUCU 4742 AGGACGG GGCTAGCTACAACGA AC	5701
270   GACAUGAA G CUGCGGCU   4716   AGCCGCAG GGCTAGCTACAACGA TTCATGTC   273   AUGAAGCU G CGGCUCCCC   4717   GGGAGCCG GGCTAGCTACAACGA AGCTTCAT   276   AAGCUGCG G CUCCCUGC   4718   GCAGGGAG GGCTAGCTACAACGA AGCTTCAT   276   AAGCUGCG C CCAGUCCC   4719   GGGACTGG GGCTAGCTACAACGA AGGGAGCC   283   GGCUCCCU G CCAGUCCC   4719   GGGACTGG GGCTAGCTACAACGA AGGGAGCC   287   CCCUGCCA G UCCCGAGA   4720   TCTCGGGA GGCTAGCTACAACGA AGGGAGCC   295   GUCCCGAG A CCCACCUG   4721   CAGGTGGG GGCTAGCTACAACGA CGCAGGGG   299   CGAGACCC A CCUGGACA   4722   TGTCCAGG GGCTAGCTACAACGA CGCGGTTGC   305   CCACCUGG A CAUGCUCC   4723   GGAGCATG GGCTAGCTACAACGA CAGGTTG   307   ACCUGGAC A UGCUCCGC   4724   GCGAGCA GGCTAGCTACAACGA CAGGTGG   309   CUGGACAU G UCCCGCCA   4725   TGGCGGAG GGCTAGCTACAACGA GTCCAGGT   314   CAUGCUCC G CCACCUCU   4726   AGAGGTGG GGCTAGCTACAACGA ATGTCCAG   314   CAUGCUCC G CCACCUCU   4726   AGAGGTGG GGCTAGCTACAACGA GGAGCATG   317   GCUCCGCC A CCUCUACC   4727   GGTAGAGG GGCTAGCTACAACGA GGAGCATG   323   CCACCUCU A CCAGGGCU   4728   AGCCCTGG GGCTAGCTACAACGA GAGGGAGC   329   CUACCAGG G CUGCCAGG   4729   CCTGGCAG GGCTAGCTACAACGA AGAGGTGG   332   CCACGUCU A CCAGGGGU   4728   AGCCCTGG GGCTAGCTACAACGA AGAGGTGG   332   CCACGUCU A CCAGGGGA   4729   CCTGGCAG GGCTAGCTACAACGA CCTGGTAG   332   CCACGUCU A CCAGGGGA   4730   CCACCTGG GGCTAGCTACAACGA CCTGGCAG   3337   GCUGCCAG G UGGUGCAG   4731   CTGCACCA GGCTAGCTACAACGA CCTGGCAG   4731   CTGCACCA GGCTAGCTACAACGA CCTGGCAG   4732   TCCCTGCA GGCTAGCTACAACGA CCCCTGG   3357   AACCUGGA A CUACCUA   4733   TTTCCCTG GGCTAGCTACAACGA CCCCTGG   3557   AACCUGGA A CUACCUA   4733   TTTCCCTG GGCTAGCTACAACGA TCCACGTG   356   ACUACCUA   4735   TAGGTGAG GGCTAGCTACAACGA TCCACGTG   373   ACCUGCCA A CCAUCUG   4736   CAGGTAG GGCTAGCTACAACGA AGGTAGTACAACGA AGGTAGCTACAACGA AGGTAGCTA	5702
273	5703
276         AAGCUGCG         CUCCCUGC         4718         GCAGGGAG         GCTAGCTACAACGA         CGCAGCT           283         GGCUCCU         G CCAGUCCC         4719         GGAACTGG         GGCTAGCTACAACGA         AGGAGGC           287         CCCUGCCA         G UCCGAGA         4720         TCTCGGGA         GGCTAGCTACAACGA         TGCGGGG           295         GUCCGAGA         A CCCACCUG         4721         CAGGTGGG         GGCTAGCTACAACGA         GTCGGGAC           305         CCACCUGGA         A CAUGCUCC         4723         GGAGCATG         GGCTAGCTACAACGA         CCAGGTGG           307         ACCUGGAC         A UGCUCCGC         4724         GCGGAGCA         GGCTAGCTACAACGA         ATGCCAGT           309         CUGGACAU         G CUCCGCCA         4725         TGGCGGAG         GGCTAGCTACAACGA         ATGCCAGT           314         CAUGUCCA         CCACCUCU         4726         AGAGGTGG         GGCTAGCTACAACGA         AGAGGTGG           323         CCACCUCU         4727         GGTAGGGGGGGTAGCTACAACGA         AGAGGTGG           322         CUACAGG         G CUGCCAGG         4729         CCTGGCAG         GGCTAGCTACAACGA         AGCCTGG           337         GCUGCCAG         4731         C	5704
GGCUCCCU G CCAGUCCC 4719 GGGACTGG GGCTAGCTACAACGA AGGGAGCC 287 CCCUGCCA G UCCCGAGA 4720 TCTCGGGA GGCTAGCTACAACGA TGGCAGGG GGCAGCCCGGA CCCAGCCUG 4721 CAGGTGGG GGCTAGCTACAACGA CTCGGGAC 299 CGAGACCC A CCUGGACA 4722 TGTCCAGG GGCTAGCTACAACGA GGGTCTGG 305 CCACCUGG A CAUGCUCC 4723 GGAGCATG GGCTAGCTACAACGA GGGTCTGG 307 ACCUGGAC A UGCUCCGC 4724 GCGGAGC GGCTAGCTACAACGA GGTCCAGGT 309 CUGGACAU G CUCCGCCA 4725 TGGCGGAG GGCTAGCTACAACGA GTCCAGGT 314 CAUGCUCC G CCACCUCU 4726 AGAGGTGG GGCTAGCTACAACGA GTCCAGGT 317 GCUCCGCC A CCUCUACC 4727 GGTAGAGG GGCTAGCTACAACGA GGCCAGG 314 CAUGCUCC G CCACCUCU 4726 AGAGGTGG GGCTAGCTACAACGA GGCGAGC 3229 CUACCAGG C CUGCACCU 4727 GGTAGAGG GGCTAGCTACAACGA GGGGAGC 3229 CUACCAGG C CUGCACC 4729 CCTGGCAG GGCTAGCTACAACGA GGAGGAGC 3229 CUACCAGG C CUGCAGG 4729 CCTGGCAG GGCTAGCTACAACGA AGAGGTGG 3229 CUACCAGG C CUGCAGG 4729 CCTGGCAG GGCTAGCTACAACGA AGAGGTGG 3229 CUACCAGG C CUGCCAG 4729 CCTGGCAG GGCTAGCTACAACGA AGAGGTGG 3229 CUACCAGG C UGGUGCAG 4731 CTGCACCA GGCTAGCTACAACGA AGCCCTGG 332 CCAGGGCU G CCAGGGGA 4731 CTGCACCA GGCTAGCTACAACGA AGCCCTGG 332 CCAGGGGU G UGGUGCAG 4731 CTGCACCA GGCTAGCTACAACGA CTGGCAGC 4731 TCCCTGCA GGCTAGCTACAACGA CTGCCAGG 340 GCCAGGUG C UGCAGGAA 4732 TCCCTGCA GGCTAGCTACAACGA CTGCAGC 342 CAGGUGGU G CAGGGAAA 4733 TTTCCCTG GGCTAGCTACAACGA TCCCTGG 342 CAGGUGGU C CAGGGAAA 4733 TTTCCCTG GGCTAGCTACAACGA TCCCTGG 342 CAGGUGGA C CUACCUA 4735 TAGGTGAG GGCTAGCTACAACGA TCCCTGC 3436 CAGGCAGC A CCCACCAA 4735 TAGGTGAG GGCTAGCTACAACGA TCCACGGT 3436 CAGGCAGG GGCTAGCTACAACGA TCCACGGT 3436 CAGGCAGG GGCTAGCTACAACGA TCCACGGT 3436 CAGGCAGG GGCTAGCTACAACGA TCCACGGT 3436 CAGGCAGG GGCTAGCTACAACGA AGGTAGGT 3436 CAGCCCG A CCACCACA 4736 CAGGTAGG GGCTAGCTACAACGA AGGTAGGT 3436 CAGCCCG A CCACCACA 4736 CAGGTAGG GGCTAGCTACAACGA AGGTAGGT 344 CAGGCAGG GGCTAGCTACAACGA AGGAAGGA ACCACCTG GCCCACCAA 4738 TGGGGG GGCTAGCTACAACGA AGGAAGA 4744	5705
287 CCCUGCCA G UCCCGAGA 4721 TCTCGGGA GGCTAGCTACAACGA TGGCAGGG 295 GUCCCGAG A CCCACCUG 4721 CAGGTGGG GGCTAGCTACAACGA CTCGGGAC 299 CGAGACCC A CCUGGACA 4722 TGTCCAGG GGCTAGCTACAACGA CTCGGGAC 305 CCACCUGG A CAUGCUCC 4723 GGAGCATG GGCTAGCTACAACGA CCAGGTTGG 307 ACCUGGAC A UGCUCCGC 4724 GCGGAGCA GGCTAGCTACAACGA CCAGGTTGG 308 CUGGACAU G CUCCGCCA 4725 TGGCGGAG GGCTAGCTACAACGA ATGTCCAG 314 CAUGCUCC G CCACCUCU 4726 AGAGGTGG GGCTAGCTACAACGA ATGTCCAG 317 GCUCCGCC A CCUCUACC 4727 GGTAGAGG GGCTAGCTACAACGA GGAGCATG 323 CCACCUCU A CCAGGGCU 4728 ASCCCTGG GGCTAGCTACAACGA GGAGCATG 329 CUACCAGG G CUGCCAGG 4729 CCTGGCAG GGCTAGCTACAACGA AGAGGTGG 329 CUACCAGG G CUGCCAGG 4729 CCTGGCAG GGCTAGCTACAACGA AGAGGTGG 329 CUACCAGG G UGGCCAGG 4729 CCTGGCAG GGCTAGCTACAACGA AGAGGTGG 329 CUACCAGG G UGGCAGG 4730 CCACCTGG GGCTAGCTACAACGA AGACGTGG 337 GCUGCCAG UGGCAGG 4731 CTGCACCA GGCTAGCTACAACGA AGCCCTGG 337 GCUGCCAG G UGGCAGGA 4731 CTGCACCA GGCTAGCTACAACGA CACCTGGC 340 GCCAGGUG G UGCAGGGA 4731 CTCCCTGC GGCTAGCTACAACGA CACCTGGC 340 GCCAGGUG G UGCAGGAA 4733 TTTCCCTG GGCTAGCTACAACGA ACCACCTG 350 GCAGGGAA A CCUGCCAA 4734 GTTCCAGG GGCTAGCTACAACGA TCCCTGC 357 AACCUGGA A CUCACCUA 4735 TAGGTCAG GGCTAGCTACAACGA TCCCTGC 357 AACCUGGA A CUCACCUA 4735 TAGGTCAG GGCTAGCTACAACGA TCCCTGC 365 ACUCACCU A CCUGCCCAA 4736 CAGGTAGG GGCTAGCTACAACGA TCCCTGC 365 ACUCACCU A CCUGCCCAA 4736 CAGGTAGG GGCTAGCTACAACGA AGGTAGGT 369 ACCUACCU G CCCACCAA 4738 TTGGTGGG GGCTAGCTACAACGA AGGTAGGT 370 GCCCACCA A UGCCCCAA 4739 GGCATGG GGCTAGCTACAACGA AGGTAGGT 371 GCCCACCA A UGCCCCA 4739 GGCATGG GGCTAGCTACAACGA AGGTAGGT 372 GCCCACCA A UGCCACCA 4734 GAGACAG GGCTAGCTACAACGA AGGTAGGT 373 ACCUGCC A CCAAUGCC 4739 GGCATGG GGCTAGCTACAACGA AGGTAGGT 374 GCCACCA A UGCCACCAA 4738 TTGGTGGG GGCTAGCTACAACGA AGGTAGGT 375 GCCACCAA UGCCGCA 4740 GGCTAGCTACAACGA AGGTAGGT 376 GCCACCAA UGCCGCA 4740 GGCTAGCTACAACGA AGGTAGCTACAACGA AGGTAGGT 377 GCCCACCAA UGCCGCA 4744 GCCCTGGAG GGCTAGCTACAACGA AGGAGGA 4741 CAGGAGGU A UCCUGCCU 4741 AGGACAGG GGCTAGCTACAACGA AGGAAGAA 4741 GCCCTGG GGCTAGCTACAACGA AGGCAGGCC 4741 GCCCT	5706
295 GUCCCAGA A CCCACCUG 4721 CAGGTGGG GGCTAGCTACAACGA CTCGGGAC 299 CGAGACCC A CCUGGACA 4722 TGTCCAGG GGCTAGCTACAACGA GGGTCTCG 305 CCACCUGA A CAUGCUCC 4723 GGAGCATG GGCTAGCTACAACGA GCAGGTGG 307 ACCUGGAC A UGCUCCGC 4724 GCGGAGCA GGCTAGCTACAACGA GCCAGGTGG 308 CUGGACAU G CUCCGCCA 4725 TGGCGGAG GGCTAGCTACAACGA GTCCAGGT 314 CAUGCUCC G CCACCUCU 4726 AGAGGTGG GGCTAGCTACAACGA ATGTCCAG 314 CAUGCUCC G CCACCUCU 4726 AGAGGTGG GGCTAGCTACAACGA GGCGGAGC 317 GCUCCGCC A CCUCUACC 4727 GGTAGAGG GGCTAGCTACAACGA GGAGCATG 323 CCACCUCU A CCAGGGCU 4728 AGCCCTGG GGCTAGCTACAACGA GGAGGAGC 329 CUACCAGG C CUGCCAGG 4729 CCTGGCAG GGCTAGCTACAACGA CCTGGTAG 332 CCACGUCU A CCAGGGCU 4728 AGCCCTGG GGCTAGCTACAACGA CCTGGTAG 333 CCAGCGCU G CCAGGGG 4730 CCACCTGG GGCTAGCTACAACGA CCTGGTAG 334 GCUGCCAG G UGGUCCAG 4731 CTGCACCA GGCTAGCTACAACGA ACCCTGG 340 GCCAGGGU G CCAGGGGA 4731 CTGCACCA GGCTAGCTACAACGA ACCCTGG 340 GCCAGGUG G UGCAGGGA 4731 CTGCACCA GGCTAGCTACAACGA ACCCTGG 342 CAGGUGGU G CAGGGAAA 4733 TTCCCTGC GGCTAGCTACAACGA ACCCTGGC 342 CAGGUGGU G CAGGGAAC 4734 GTTCCAGG GGCTAGCTACAACGA ACCCTGGC 350 GCAGGGAA A CCUGACAA 4733 TTCCCTG GGCTAGCTACAACGA ACCCTGC 351 AACCUGGA A CUCACCUA 4735 TAGGTGAG GGCTAGCTACAACGA TCCAGGTT 361 UGGAACUC A CCUACCUA 4735 TAGGTGAG GGCTAGCTACAACGA TCCAGGTT 362 ACCUACCU A CCUGCCCA 4737 TGGGCAGG GGCTAGCTACAACGA AGGTACGA 363 ACUCACCU A CCUGCCCA 4737 TGGGCAGG GGCTAGCTACAACGA AGGTAGGT 364 ACCUGACA A UGCCACCAA 4738 TTGGTGGG GGCTAGCTACAACGA AGGTAGGT 373 ACCUGCC A CCAAUGCC 4739 GGCATGG GGCTAGCTACAACGA AGGTAGGT 374 CCACCACA A UGCCAGCC 4740 GGCTGGG GGCTAGCTACAACGA AGGTAGGT 375 CCACCACA A UGCCAGCC 4740 GGCTGGG GGCTAGCTACAACGA AGGTAGGG 379 CCACCAA A UGCCAGCC 4740 GGCTGGG GGCTAGCTACAACGA AGGTAGGG 387 GCCACCA A UGCCAGCC 4741 CAGGCTGG GGCTAGCTACAACGA AGGTAGGG 387 GCCACCA A UGCCAGCC 4741 CAGGCTGG GGCTAGCTACAACGA AGGTAGGT 388 CAAUGCCA G CCUGUCCU 4742 AGGACAG GGCTAGCTACAACGA AGGTAGGT 389 CACCACAA G CCCACCAA 4741 CAGGCTGG GGCTAGCTACAACGA AGGTAGGT 389 CCACCAAG G UCCUUCCU 4742 AGGACAG GGCTAGCTACAACGA AGGATGGA 401 UCCUGCAG G UCCUUCCU 4742 AGGACGA GGCTAGC	5707
299 CGAGACCC A CCUGGACA 4722 TGTCCAGG GGCTAGCTACAACGA GGGTCTCG 305 CCACCUGG A CAUGCUCC 4723 GGAGCATG GGCTAGCTACAACGA CCAGGTTG 307 ACCUGGAC A UGCUCCGC 4724 GCGAGACA GGCTAGCTACAACGA GTCCAGGT 309 CUGGACAU G CUCCGCCA 4725 TGGCGGAG GGCTAGCTACAACGA ATGTCCAG 314 CAUGCUCC G CCACCUCU 4726 AGAGGTGG GGCTAGCTACAACGA ATGTCCAG 317 GCUCCGCC A CCUCUACC 4727 GGTAGAGG GGCTAGCTACAACGA GGAGCATG 323 CCACCUCU A CCAGGGCU 4728 AGGCCTGG GGCTAGCTACAACGA GGAGCATG 329 CUACCAGG G CUGCCAGG 4729 CCTGGCAG GGCTAGCTACAACGA AGAGTGG 320 CCACCUCU A CCAGGGCU 4728 AGGCCTGG GGCTAGCTACAACGA AGAGGTGG 321 CCACCUCU A CCAGGGCU 4728 AGCCCTGG GGCTAGCTACAACGA AGAGGTGG 322 CCACGGG G CGGCAGG 4729 CCTGGCAG GGCTAGCTACAACGA AGCCCTGG 337 GCUGCCAG G UGGUGCAG 4730 CCACCTGG GGCTAGCTACAACGA ACCCCTGG 340 GCCAGGUG G UGCAGGGA 4731 CTGCACCA GGCTAGCTACAACGA CCTGGCC 341 CCAGGUG G UGCAGGGA 4732 TCCCTGCA GGCTAGCTACAACGA CACCTGGC 342 CAGGUGGU G CAGGGAAA 4733 TTTCCCTG GGCTAGCTACAACGA CACCTGGC 342 CAGGUGGU G CAGGGAAA 4733 TTTCCCTG GGCTAGCTACAACGA ACCACCTG 350 GCAGGGAA CCUACCUA 4735 TAGGTGAG GGCTAGCTACAACGA TCCCAGGT 351 UGGAACUC A CCUACCUA 4736 CAGGTAGG GGCTAGCTACAACGA TCCCAGGTT 361 UGGAACUC A CCUACCUA 4736 CAGGTAGG GGCTAGCTACAACGA AGCACCTG 363 ACUCACCU A CCUACCUA 4736 TAGGTGAG GGCTAGCTACAACGA AGGTAGGT 364 ACUCACCU A CCUACCUA 4736 TAGGTGAG GGCTAGCTACAACGA AGGTAGGT 365 ACUCACCU A CCAAUGCC 4739 GGCATTGG GGCTAGCTACAACGA AGGTAGGT 366 ACUCACCU A CCAAUGCC 4739 GGCATTGG GGCTAGCTACAACGA AGGTAGGT 373 ACCUGCCC A CCAAUGCC 4739 GGCATTGG GGCTAGCTACAACGA AGGTAGGT 374 GCCCACCAA 4736 TTGGTGG GGCTAGCTACAACGA AGGTAGGT 375 GCCACCAA GCACCUCC 4740 GGCTGGCA GGCTAGCTACAACGA AGGTAGGT 376 GCCACCAA GCACGCUG 4740 AGGACGG GGCTAGCTACAACGA AGGTAGGT 377 GCCCACCAA 4741 CAGGCTGG GGCTAGCTACAACGA AGGTAGGT 378 GCCACCAA GCAAGGCC 4740 AGGACGG GGCTAGCTACAACGA AGGTAGGA 379 CCACCAAUGCC ACCACACA 4741 AGGACGG GGCTAGCTACAACGA AGGACGGC 379 CCACCAAUGCC GCCACCAA 4741 CAGGCTGGC GGCTAGCTACAACGA AGGACGGC 387 GCCACCAA GCCACGCCC 4740 AGGACGGG GGCTAGCTACAACGA AGGACGGA 4741 CAGGAGGA AUACCACGA GCCCTGCCCC GCCCACGACCTACAACGA ACCCCCGGCA	5708
305 CCACCUGG A CAUGCUCC 4723 GGAGCATG GGCTAGCTACAACGA CCAGGTGG 307 ACCUGGAC A UGCUCCGC 4724 GCGGAGCA GGCTAGCTACAACGA ATGTCCAG 309 CUGGACAU G CUCCGCCA 4725 TGGCGAG GGCTAGCTACAACGA ATGTCCAG 314 CAUGCUCC G CCACCUCU 4726 AGAGGTGG GGCTAGCTACAACGA ATGTCCAG 317 GCUCCGCC A CCUCUACC 4727 GGTAGAGG GGCTAGCTACAACGA AGAGCATG 323 CCACCUCU A CCAGGGCU 4728 AGCCCTGG GGCTAGCTACAACGA AGAGGTGG 323 CCACCUCU A CCAGGGCU 4728 AGCCCTGG GGCTAGCTACAACGA AGAGGTGG 329 CUACCAGG G CUGCCAGG 4729 CCTGGCAG GGCTAGCTACAACGA AGAGGTGG 320 CCACGUC G CCAGGUGG 4729 CCTGGCAG GGCTAGCTACAACGA AGAGGTGG 337 GCUGCCAG G UGGUGCAG 4730 CCACCTGG GGCTAGCTACAACGA AGCCCTGG 337 GCUGCCAG G UGGUGCAG 4731 CTGCCACCA GGCTAGCTACAACGA CCTGGCA 340 GCCAGGUG G UGGUGCAG 4731 CTGCCACCA GGCTAGCTACAACGA CACCTGGC 342 CAGGUGGU G CAGGGAAA 4732 TCCCTGCA GGCTAGCTACAACGA ACCCCTG 342 CAGGUGGU G CAGGGAAA 4733 TTTCCCTG GGCTAGCTACAACGA ACCCCTG 350 GCAGGGAA A CCUGGAAC 4734 GTTCCAGG GGCTAGCTACAACGA ACCACCTG 351 UGGAACUC A CCUACCUA 4735 TAGGTGAG GGCTAGCTACAACGA TCCAGGTT 361 UGGAACUC A CCUACCUA 4736 CAGGTAGG GGCTAGCTACAACGA AGGTAGGT 365 ACUCACCU A CCUGCCCA 4737 TGGGCAGG GGCTAGCTACAACGA AGGTAGGT 366 ACUCACCU A CCUGCCCA 4737 TGGGCAGG GGCTAGCTACAACGA AGGTAGGT 370 ACCUGCCC A CCAAUGCC 4730 GGCTAGCTACAACGA AGGTAGGT 371 ACCUGCCC A CCAAUGCC 4740 GGCTGGC GGCTAGCTACAACGA AGGTAGGT 372 GCCCACCA A UGCCAGCC 4740 GGCTGGCA GGCTAGCTACAACGA AGGTAGGT 373 ACCUGCCC A CCAAUGCC 4740 GGCTGGCA GGCTAGCTACAACGA AGGTAGGT 374 GCCCACCA A UGCCAGCC 4740 GGCTGGCA GGCTAGCTACAACGA AGGTAGGT 375 CCCCCCCA A UGCCAGCC 4740 GGCTGGCA GGCTAGCTACAACGA AGGTAGGT 376 CCCCCCCA A UGCCAGCC 4740 AGGAAGGA GGCTAGCTACAACGA AGGTAGGT 377 CCCCACCAA UGCCAGCC 4740 AGGAAGGA GGCTAGCTACAACGA AGGTAGGT 378 ACCUGCCC A CCAAUGCC 4740 AGGAAGGA GGCTAGCTACAACGA AGGTAGGA 379 CCACCAAU G CCAGCCUG 4741 CAGGCTGGC GGCTAGCTACAACGA AGGTAGGA 379 CCACCAAU G CCAGCCUG 4741 CAGGCTGGC GGCTAGCTACAACGA AGGAAGGA 4741 CAGGAAGGA GCTGCACCAA AUGCCAGGC GCTAGCTACAACGA AGGAAGGA 401 UGCAGGAG G UAUCCAGG 4746 CTCCTGGA GGCTAGCTACAACGA ACCTCCGA 414 CAGGAGGU A UAUCCAGG 4746 CTCCTGGA GGCTAGC	5709
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350 GCAGGGAA A CCUGGAAC 4734 GTTCCAGG GGCTAGCTACAACGA TTCCCTGC 357 AACCUGGA A CUCACCUA 4735 TAGGTAGG GGCTAGCTACAACGA TCCAGGTT 361 UGGAACUC A CCUACCUG 4736 CAGGTAGG GGCTAGCTACAACGA GAGTTCCA 365 ACUCACCU A CCUGCCCA 4737 TGGGCAGG GGCTAGCTACAACGA AGGTAGGT 369 ACCUACCU G CCCACCAA 4738 TTGGTGGG GGCTAGCTACAACGA AGGTAGGT 373 ACCUGCCC A CCAAUGCC 4739 GGCATTGG GGCTAGCTACAACGA AGGTAGGT 377 GCCCACCA A UGCCAGCC 4740 GGCTGGCA GGCTAGCTACAACGA TGGTGGGC 379 CCACCAAU G CCAGCCUG 4741 CAGGCTGG GGCTAGCTACAACGA ATTGGTGG 383 CAAUGCCA G CCUGUCCU 4742 AGGACAGG GGCTAGCTACAACGA TGGCATTG 387 GCCAGCCU G UCCUUCCU 4742 AGGACAGG GGCTAGCTACAACGA AGGCTGGC 396 UCCUUCCU G CAGGAUAU 4744 ATATCCTG GGCTAGCTACAACGA AGGCTGGC 401 UCCUGCAGG A UAUCCAGG 4745 CCTGGATA GGCTAGCTACAACGA CCTGCAGG 402 UGCAGGAU A UCCAGGAG 4746 CTCCTGGA GGCTAGCTACAACGA ATCCTGCA 403 UGCAGGAU A UCCAGGAG 4746 CTCCTGGA GGCTAGCTACAACGA ATCCTGCA 412 UCCAGGAG G UGCAGGCC 4747 GCCCTGCA GGCTAGCTACAACGA ACCTCCTGCA 414 CAGGAGGU G CAGGGCUA 4748 TAGCCCTG GGCTAGCTACAACGA ACCTCCTGCA 419 GGUGCAGG G CUACGUGC 4749 GCCCTGCA GGCTAGCTACAACGA ACCTCCTGCA 419 GGUGCAGG G CUACGUGC 4749 GCACGTAG GGCTAGCTACAACGA ACCTCCTGCA 419 GGUGCAGG G CUACGUGC 4749 GCACGTAG GGCTAGCTACAACGA ACCTCCTGCA	5720
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361 UGGAACUC A CCUACCUG 4736 CAGGTAGG GGCTAGCTACAACGA GAGTTCCA 365 ACUCACCU A CCUGCCCA 4737 TGGGCAGG GGCTAGCTACAACGA AGGTAGGT 369 ACCUACCU G CCCACCAA 4738 TTGGTGGG GGCTAGCTACAACGA AGGTAGGT 373 ACCUGCCC A CCAAUGCC 4739 GGCATTGG GGCTAGCTACAACGA GGGCAGGT 374 GCCCACCA A UGCCAGCC 4740 GGCTGGCA GGCTAGCTACAACGA TGGTGGGC 375 CCACCAAU G CCAGCCUG 4741 CAGGCTGG GGCTAGCTACAACGA ATTGGTGG 383 CAAUGCCA G CCUGUCCU 4742 AGGACAGG GGCTAGCTACAACGA TGGCATTG 387 GCCAGCCU G UCCUUCCU 4742 AGGACAGG GGCTAGCTACAACGA AGGCATGC 396 UCCUUCCU G CAGGAUAU 4744 ATATCCTG GGCTAGCTACAACGA AGGAAGGA 401 CCUGCAGG A UAUCCAGG 4745 CCTGGATA GGCTAGCTACAACGA CCTGCAGG 403 UGCAGGAU A UCCAGGAG 4746 CTCCTGGA GGCTAGCTACAACGA ATCCTGCA 404 UCCAGGAG G UGCAGGGC 4747 GCCCTGCA GGCTAGCTACAACGA CTCCTGGA 412 UCCAGGAG G CAGGGCUA 4748 TAGCCCTG GGCTAGCTACAACGA ACCTCCTG 419 GGUGCAGG G CUACGUGC 4749 GCCCTGCA GGCTAGCTACAACGA CCTGCACC 4749 GCACGTAG GGCTAGCTACAACGA ACCTCCTG	5722
365 ACUCACCU A CCUGCCCA 4737 TGGGCAGG GGCTAGCTACAACGA AGGTAGGT 369 ACCUACCU G CCCACCAA 4738 TTGGTGGG GGCTAGCTACAACGA AGGTAGGT 373 ACCUGCCC A CCAAUGCC 4739 GGCATTGG GGCTAGCTACAACGA GGGCAGGT 377 GCCCACCA A UGCCAGCC 4740 GGCTGGCA GGCTAGCTACAACGA TGGTGGGC 379 CCACCAAU G CCAGCCUG 4741 CAGGCTGG GGCTAGCTACAACGA ATTGGTGG 383 CAAUGCCA G CCUGUCCU 4742 AGGACAGG GGCTAGCTACAACGA TGGCATTG 387 GCCAGCCU G UCCUUCCU 4743 AGGAAGGA GGCTAGCTACAACGA AGGCTGGC 396 UCCUUCCU G CAGGAUAU 4744 ATATCCTG GGCTAGCTACAACGA AGGAAGGA 401 CCUGCAGG A UAUCCAGG 4745 CCTGGATA GGCTAGCTACAACGA CCTGCAGG 403 UGCAGGAU A UCCAGGAG 4746 CTCCTGGA GGCTAGCTACAACGA ATCCTGCA 404 UCCAGGAG G UGCAGGGC 4747 GCCCTGCA GGCTAGCTACAACGA CTCCTGGA 412 UCCAGGAG G CAGGGCUA 4748 TAGCCCTG GGCTAGCTACAACGA ACCTCCTGGA 414 CAGGAAGU G CAGGGCUA 4748 TAGCCCTG GGCTAGCTACAACGA ACCTCCTG	5723
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419 GGUGCAGG G CUACGUGC 4749 GCACGTAG GGCTAGCTACAACGA CCTGCACC	5736
TORCCACG GCCTACCTACAACGA AGCCCTGC	5737
	5738
424 AGGGCUAC G UGCUCAUC 4751 GATGAGCA GGCTAGCTACAACGA GTAGCCCT	5739
426 GGCUACGU G CUCAUCGC 4752 GCGATGAG GGCTAGCTACAACGA ACGTAGCC	5740
430 ACGUGCUC A UCGCUCAC 4753 GTGAGCGA GGCTAGCTACAACGA GAGCACGT	5741
433 UGCUCAUC G CUCACAAC 4754 GTTGTGAG GGCTAGCTACAACGA GATGAGCA	5742

437	CAUCGCUC A CAACCAAG	4755	CTTGGTTG GGCTAGCTACAACGA GAGCGATG	5743
440	CGCUCACA A CCAAGUGA	4756	TCACTTGG GGCTAGCTACAACGA TGTGAGCG	5744
445	ACAACCAA G UGAGGCAG	4757	CTGCCTCA GGCTAGCTACAACGA TTGGTTGT	5745
450	CAAGUGAG G CAGGUCCC	4758	GGGACCTG GGCTAGCTACAACGA CTCACTTG	5746
454	UGAGGCAG G UCCCACUG	4759	CAGTGGGA GGCTAGCTACAACGA CTGCCTCA	5747
459	CAGGUCCC A CUGCAGAG	4760	CTCTGCAG GGCTAGCTACAACGA GGGACCTG	5748
462	GUCCCACU G CAGAGGCU	4761	AGCCTCTG GGCTAGCTACAACGA AGTGGGAC	5749
468	CUGCAGAG G CUGCGGAU	4762	ATCCGCAG GGCTAGCTACAACGA CTCTGCAG	5750
471	CAGAGGCU G CGGAUUGU	4763	ACAATCCG GGCTAGCTACAACGA AGCCTCTG	5751
475	GGCUGCGG A UUGUGCGA	4764	TCGCACAA GGCTAGCTACAACGA CCGCAGCC	5752
478	UGCGGAUU G UGCGAGGC	4765	GCCTCGCA GGCTAGCTACAACGA AATCCGCA	5753
480	CGGAUUGU G CGAGGCAC	4766	GTGCCTCG GGCTAGCTACAACGA ACAATCCG	. 5754
485	UGUGCGAG G CACCCAGC	4767	GCTGGGTG GGCTAGCTACAACGA CTCGCACA	5755
487	UGCGAGGC A CCCAGCUC	4768	GAGCTGGG GGCTAGCTACAACGA GCCTCGCA	5756
492	GGCACCCA G CUCUUUGA	4769	TCAAAGAG GGCTAGCTACAACGA TGGGTGCC	5757
503	CUUUGAGG A CAACUAUG	4770	CATAGTTG GGCTAGCTACAACGA CCTCAAAG	5758
506	UGAGGACA A CUAUGCCC	4771	GGGCATAG GGCTAGCTACAACGA TGTCCTCA	5759
509	GGACAACU A UGCCCUGG	4772	CCAGGGCA GGCTAGCTACAACGA AGTTGTCC	5760
511	ACAACUAU G CCCUGGCC	4773	GGCCAGGG GGCTAGCTACAACGA ATAGTTGT	5761
517	AUGCCCUG G CCGUGCUA	4774	TAGCACGG GGCTAGCTACAACGA CAGGGCAT	5762
520	CCCUGGCC G UGCUAGAC	4775	GTCTAGCA GGCTAGCTACAACGA GGCCAGGG	5763
522	CUGGCCGU G CUAGACAA	4776	TTGTCTAG GGCTAGCTACAACGA ACGGCCAG	5764
527	CGUGCUAG A CAAUGGAG	4777	CTCCATTG GGCTAGCTACAACGA CTAGCACG	5765
530	GCUAGACA A UGGAGACC	4778	GGTCTCCA GGCTAGCTACAACGA TGTCTAGC	5766
536	CAAUGGAG A CCCGCUGA	4779	TCAGCGGG GGCTAGCTACAACGA CTCCATTG	5767
540	GGAGACCC G CUGAACAA	4780	TTGTTCAG GGCTAGCTACAACGA GGGTCTCC	5768
545	CCCGCUGA A CAAUACCA	4781	TGGTATTG GGCTAGCTACAACGA TCAGCGGG	5769
548	GCUGAACA A UACCACCC	4782	GGGTGGTA GGCTAGCTACAACGA TGTTCAGC	5770
550	UGAACAAU A CCACCCCU	4783	AGGGTGG GGCTAGCTACAACGA ATTGTTCA	5771
553	ACAAUACC A CCCCUGUC	4784	GACAGGGG GGCTAGCTACAACGA GGTATTGT	5772
559	CCACCCCU G UCACAGGG	4785	CCCTGTGA GGCTAGCTACAACGA AGGGGTGG	5773
562	CCCCUGUC A CAGGGGCC	4786	GGCCCTG GGCTAGCTACAACGA GACAGGGG	5774
568	UCACAGGG G CCUCCCA	4787	TGGGGAGG GGCTAGCTACAACGA CCCTGTGA	5775
581	CCCAGGAG G CCUGCGGG	4788	CCCGCAGG GGCTAGCTACAACGA CTCCTGGG	5776
585	GGAGGCCU G CGGGAGCU	4789	AGCTCCCG GGCTAGCTACAACGA AGGCCTCC	5777
591	CUGCGGGA G CUGCAGCU	4790	AGCTGCAG GGCTAGCTACAACGA TCCCGCAG	5778
594		4791	CGAAGCTG GGCTAGCTACAACGA AGCTCCCG	5779
597	<u> </u>	4792	CTTCGAAG GGCTAGCTACAACGA TGCAGCTC	5780
605	GCUUCGAA G CCUCACAG	4793	CTGTGAGG GGCTAGCTACAACGA TTCGAAGC	5781
610	GAAGCCUC A CAGAGAUC	4794	GATCTCTG GGCTAGCTACAACGA GAGGCTTC	5782
616	·	4795	TTTCAAGA GGCTAGCTACAACGA CTCTGTGA	5783
631	AAGGAGGG G UCUUGAUC	4796	GATCAAGA GGCTAGCTACAACGA CCCTCCTT	5784
637	<u> </u>	4797	CCGCTGGA GGCTAGCTACAACGA CAAGACCC	5785
642	UUGAUCCA G CGGAACCC	4798	GGGTTCCG GGCTAGCTACAACGA TGGATCAA	5786
647	<u> </u>	4799	GCTGGGGG GGCTAGCTACAACGA TCCGCTGG	5787
654 659	<u></u>	4800	TAGCAGAG GGCTAGCTACAACGA TGGGGGTT	5788
662	<u> </u>	4801	CCTGGTAG GGCTAGCTAGAACGA AGAGCTGG	5789
668		4802	TGTCCTGG GGCTAGCTAGAACGA AGCAGAGC	5790
670		4803	AAATCGTG GGCTAGCTACAACGA CCTGGTAG	5791
673		4804	CAAAATCG GGCTAGCTACAACGA GTCCTGGT	5792
678		4805	CCACAAAA GGCTAGCTACAACGA CGTGTCCT	5793
6/8	ACGAUUUU G UGGAAGGA	4806	TCCTTCCA GGCTAGCTACAACGA AAAATCGT	5794

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686	GUGGAAGG A CAUCUUCC	4807	GGAAGATG GGCTAGCTACAACGA CCTTCCAC	5795
688	GGAAGGAC A UCUUCCAC	4808	GTGGAAGA GGCTAGCTACAACGA GTCCTTCC	5796
695	CAUCUUCC A CAAGAACA	4809	TGTTCTTG GGCTAGCTACAACGA GGAAGATG	5797
701	CCACAAGA A CAACCAGC	4810	GCTGGTTG GGCTAGCTACAACGA TCTTGTGG	5798
704	CAAGAACA A CCAGCUGG	4811	CCAGCTGG GGCTAGCTACAACGA TGTTCTTG	5799
708	AACAACCA G CUGGCUCU	4812	AGAGCCAG GGCTAGCTACAACGA TGGTTGTT	5800
712	ACCAGCUG G CUCUCACA	4813	TGTGAGAG GGCTAGCTACAACGA CAGCTGGT	5801
718	UGGCUCUC A CACUGAUA	4814	TATCAGTG GGCTAGCTACAACGA GAGAGCCA	5802
720	GCUCUCAC A CUGAUAGA	4815	TCTATCAG GGCTAGCTACAACGA GTGAGAGC	5803
724	UCACACUG A UAGACACC	4816	GGTGTCTA GGCTAGCTACAACGA CAGTGTGA	5804
728	ACUGAUAG A CACCAACC	4817	GGTTGGTG GGCTAGCTACAACGA CTATCAGT	5805
730	UGAUAGAC A CCAACCGC	4818	GCGGTTGG GGCTAGCTACAACGA GTCTATCA	5806
734	AGACACCA A CCGCUCUC	4819	GAGAGCGG GGCTAGCTACAACGA TGGTGTCT	5807
737	CACCAACC G CUCUCGGG	4820	CCCGAGAG GGCTAGCTACAACGA GGTTGGTG	5808
745	GCUCUCGG G CCUGCCAC	4821	GTGGCAGG GGCTAGCTACAACGA CCGAGAGC	5809
749	UCGGGCCU G CCACCCCU	4822	AGGGGTGG GGCTAGCTACAACGA AGGCCCGA	5810
752	GGCCUGCC A CCCCUGUU	4823	AACAGGGG GGCTAGCTACAACGA GGCAGGCC	5811
758	CCACCCCU G UUCUCCGA	4824	TCGGAGAA GGCTAGCTACAACGA AGGGGTGG	5812
766	GUUCUCCG A UGUGUAAG	4825	CTTACACA GGCTAGCTACAACGA CGGAGAAC	5813
768	UCUCCGAU G UGUAAGGG	4826	CCCTTACA GGCTAGCTACAACGA ATCGGAGA	5814
770	UCCGAUGU G UAAGGGCU	4827	AGCCCTTA GGCTAGCTACAACGA ACATCGGA	5815
776	GUGUAAGG G CUCCCGCU	4828	AGCGGGAG GGCTAGCTACAACGA CCTTACAC	5816
782	GGGCUCCC G CUGCUGGG	4829	CCCAGCAG GGCTAGCTACAACGA GGGAGCCC	5817
785	CUCCCGCU G CUGGGGAG	4830	CTCCCCAG GGCTAGCTACAACGA AGCGGGAG	5818
797	GGGAGAGA G UUCUGAGG	4831	CCTCAGAA GGCTAGCTACAACGA TCTCTCCC	5819
806	UUCUGAGG A UUGUCAGA	4832	TCTGACAA GGCTAGCTACAACGA CCTCAGAA	5820
809	UGAGGAUU G UCAGAGCC	4833	GGCTCTGA GGCTAGCTACAACGA AATCCTCA	5821
815	UUGUCAGA G CCUGACGC	4834	GCGTCAGG GGCTAGCTACAACGA TCTGACAA	5822
820	AGAGCCUG A CGCGCACU	4835	AGTGCGCG GGCTAGCTACAACGA CAGGCTCT	5823
822	AGCCUGAC G CGCACUGU	4836	ACAGTGCG GGCTAGCTACAACGA GTCAGGCT	5824
824	CCUGACGC G CACUGUCU	4837	AGACAGTG GGCTAGCTACAACGA GCGTCAGG	5825
826	UGACGCGC A CUGUCUGU	4838	ACAGACAG GGCTAGCTACAACGA GCGCGTCA	5826
829	CGCGCACU G UCUGUGCC	4839	GGCACAGA GGCTAGCTACAACGA AGTGCGCG	5827
833	CACUGUCU G UGCCGGUG	4840	CACCGGCA GGCTAGCTACAACGA AGACAGTG	5828
835	CUGUCUGU G CCGGUGGC	4841	GCCACCGG GGCTAGCTACAACGA ACAGACAG	5829
839	CUGUGCCG G UGGCUGUG	4842	CACAGCCA GGCTAGCTACAACGA CGGCACAG	5830
842	UGCCGGUG G CUGUGCCC	4843	GGGCACAG GGCTAGCTACAACGA CACCGGCA	5831
845	CGGUGGCU G UGCCCGCU	4844	AGCGGGCA GGCTAGCTACAACGA AGCCACCG	5832
847	GUGGCUGU G CCCGCUGC	4845	GCAGCGGG GGCTAGCTACAACGA ACAGCCAC	5833
851	CUGUGCCC G CUGCAAGG	4846	CCTTGCAG GGCTAGCTACAACGA GGGCACAG	5834
854	UGCCCGCU G CAAGGGGC	4847	GCCCCTTG GGCTAGCTACAACGA AGCGGGCA	5835
861	UGCAAGGG G CCACUGCC	4848	GGCAGTGG GGCTAGCTACAACGA CCCTTGCA	5836
864	AAGGGCC A CUGCCCAC	4849	GTGGGCAG GGCTAGCTACAACGA GGCCCCTT	5837
867	GGGCCACU G CCCACUGA	4850	TCAGTGGG GGCTAGCTACAACGA AGTGGCCC	5838
871	CACUGCCC A CUGACUGC	4851	GCAGTCAG GGCTAGCTACAACGA GGGCAGTG	5839
875	GCCCACUG A CUGCUGCC	4852	GGCAGCAG GGCTAGCTACAACGA CAGTGGGC	5840
878	CACUGACU G CUGCCAUG	4853	CATGGCAG GGCTAGCTACAACGA AGTCAGTG	5841
881	UGACUGCU G CCAUGAGC	4854	GCTCATGG GGCTAGCTACAACGA AGCAGTCA	5842
884	CUGCUGCC A UGAGCAGU	4855	ACTGCTCA GGCTAGCTACAACGA GGCAGCAG	5843
888	UGCCAUGA G CAGUGUGC	4856	GCACACTG GGCTAGCTACAACGA TCATGGCA	5844
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893	UGAGCAGU G UGCUGCCG	4858	CGGCAGCA GGCTAGCTACAACGA ACTGCTCA	5846
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895	AGCAGUGU G CUGCCGGC	4859	GCCGGCAG GGCTAGCTACAACGA ACACTGCT	5847
898	AGUGUGCU G CCGGCUGC	<del> </del>	GCAGCCGG GGCTAGCTACAACGA AGCACACT	
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905	UGCCGGCU G CACGGGCC	4861	GGCCCGTG GGCTACTACAACGA AGCCGGCA	5849
907	CCGGCUGC A CGGGCCCC	4862	GGGGCCCG GGCTAGCTACAACGA GCAGCCGG	5850
911	CUGCACGG G CCCCAAGC	4863	GCTTGGGG GGCTAGCTACAACGA CCGTGCAG	5851
918	GGCCCCAA G CACUCUGA	4864	TCAGAGTG GGCTAGCTACAACGA TTGGGGCC	5852
920	CCCCAAGC A CUCUGACU	4865	AGTCAGAG GGCTAGCTACAACGA GCTTGGGG	5853
926	GCACUCUG A CUGCCUGG	4866	CCAGGCAG GGCTAGCTACAACGA CAGAGTGC	5854
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934	ACUGCCUG G CCUGCCUC	4868	GAGGCAGG GGCTAGCTACAACGA CAGGCAGT	5856
938	CCUGGCCU G CCUCCACU	4869	AGTGGAGG GGCTAGCTACAACGA AGGCCAGG	5857
944	CUGCCUCC A CUUCAACC	4870	GGTTGAAG GGCTAGCTACAACGA GGAGGCAG	5858
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956	CAACCACA G UGGCAUCU	4873	AGATGCCA GGCTAGCTACAACGA GGTTGAAG  AGATGCCA GGCTAGCTACAACGA TGTGGTTG	5861
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961	ACAGUGGC A UCUGUGAG	4875	CTCACAGA GGCTAGCTACAACGA CACTGTGG CTCACAGA GGCTAGCTACAACGA GCCACTGT	5863
965	UGGCAUCU G UGAGCUGC	4876	GCAGCTCA GGCTAGCTACAACGA AGATGCCA	5864
969	AUCUGUGA G CUGCACUG	4877	CAGTGCAG GGCTAGCTACAACGA AGATGCCA	5865
972	UGUGAGCU G CACUGCCC	4878	GGGCAGTG GGCTAGCTACAACGA TCACAGAT	5866
974	UGAGCUGC A CUGCCCAG	4879	CTGGGCAG GGCTAGCTACAACGA GCAGCTCA	5867
977	GCUGCACU G CCCAGCCC	4880	GGGCTGGG GGCTAGCTACAACGA AGTGCAGC	5868
982	ACUGCCCA G CCCUGGUC	4881	GACCAGGG GGCTAGCTACAACGA AGTGCAGC	5869
988	CAGCCCUG G UCACCUAC	4882	GTAGGTGA GGCTAGCTACAACGA TGGGCAGT	5870
991	CCCUGGUC A CCUACAAC	4883	GTTGTAGG GGCTAGCTACAACGA CAGGGCTG	5871
995	GGUCACCU A CAACACAG	4884	CTGTGTTG GGCTAGCTACAACGA AGGTGACC	5872
998	CACCUACA A CACAGACA	4885	TGTCTGTG GGCTAGCTACAACGA TGTAGGTG	5873
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1006	ACACAGAC A CGUUUGAG	4888	CTCAAACG GGCTAGCTACAACGA GTCTGTGT	5876
1008	ACAGACAC G UUUGAGUC	4889	GACTCAAA GGCTAGCTACAACGA GTGTCTGT	5877
1014	ACGUUUGA G UCCAUGCC	4890	GGCATGGA GGCTACCTACAACGA TCAAACGT	5878
1018	UUGAGUCC A UGCCCAAU	4891 4892	ATTGGGCA GGCTAGCTACAACGA GGACTCAA	5879
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1025	CAUGCCCA A UCCCGAGG	4894	CCTCGGGA GGCTAGCTACAACGA TGGGCATG	5881
1034	UCCCGAGG G CCGGUAUA	4895	TATACCGG GGCTAGCTACAACGA CCTCGGGA	5882
1038	GAGGGCCG G UAUACAUU	4896	AATGTATA GGCTAGCTACAACGA CGGCCCTC	5883 5884
1040	GGGCCGGU A UACAUUCG	4897	CGAATGTA GGCTAGCTACAACGA ACCGGCCC	5885
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1044	CGGUAUAC A UUCGGCGC	4899	GCGCCGAA GGCTAGCTACAACGA GTATACCG	5887
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1051	CAUUCGGC G CCAGCUGU	4901	ACAGCTGG GGCTAGCTACAACGA GCCGAATG	5889
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1063	GCUGUGUG A CUGCCUGU	4905	ACAGGCAG GGCTAGCTACAACGA CACACAGC	5893
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1076	CUGUCCCU A CAACUACC	4908	GGTAGTTG GGCTAGCTACAACGA AGGGACAG	5896
1079	UCCCUACA A CUACCUUU	4909	AAAGGTAG GGCTAGCTACAACGA TGTAGGGA	5897
1082	CUACAACU A CCUUUCUA	+	TAGAAAGG GGCTAGCTACAACGA AGTTGTAG	

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1096					
1096	1090	ACCUUUCU A CGGACGUG	4911	CACGTCCG GGCTAGCTACAACGA AGAAAGGT	5899
1101	1094	UUCUACGG A CGUGGGAU	4912		5900
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1125	1114	GCACCCUC G UCUGCCCC	4917		5905
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1130	1125	UGCCCCCU G CACAACCA	4919		5907
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1144	1138	ACCAAGAG G UGACAGCA	4922		5910
1151	1141	AAGAGGUG A CAGCAGAG	4923		5911
1156	1144	AGGUGACA G CAGAGGAU	4924		5912
1158	1151	AGCAGAGG A UGGAACAC	4925		5913
1161   GGAACACA G CGGUGUGA   4928   TCACACCG GGCTAGCTACAACGA TGTGTTCC   591     1164   ACACAGGG G UGUGAGAA   4929   TTCTCACA GGCTAGCTACAACGA CCGTGTGT   591     1165   ACAGCGGU G UGAGAAGU   4930   ACTTCTCA GGCTAGCTACAACGA ACCGCTGT   591     1173   UGUGAGAA G UGCAACAA   4931   TTGCTGCA GGCTAGCTACAACACA ACCGCTGT   591     1175   UGAGAAGU G CAAGCCA   4931   TTGCTGCA GGCTAGCTACAACACA ACCGCTGT   591     1175   UGAGAAGU G CAAGCCCU   4933   AGGGCTTG GGCTAGCTACAACGA ACCTTCTCA   592     1176   GAAGUGCA G CAAGCCCU   4933   AGGGCTTG GGCTAGCTACAACGA ACCTTCTCA   592     1187   CAAGCCCU G UGCCCGAG   4934   GCACAGGG GGCTAGCTACAACGA TGCTGCA   592     1189   AGCCCUGU G CCCGAGUG   4935   CTCGGGCA GGCTAGCTACAACGA ACGGCTT   592     1189   AGCCCUGU G CCCGAGUG   4936   CACTCGGG GGCTAGCTACAACGA ACAGGGCT   592     1195   GUGCCCGA G UGUCUAU   4937   ATAGCACA GGCTAGCTACAACGA ACAGGGCT   592     1197   GCCCGAGU G UGUCUAU   4938   CCATAGCA GGCTAGCTACAACGA ACACGGCC   592     1199   CCGAGUU G UGUGUGG   4936   CCATAGCA GGCTAGCTACAACGA ACACCGGC   592     1202   AGUGUGU A UGUGUGG   4940   CCAGACCA GGCTAGCTACAACGA ACACCGG   592     1203   AGUGUGU A UGUGUGG   4941   TGCCCAGA GGCTAGCTACAACGA CATACGAC   593     1211   UGGUCUGG G CAUGGAGC   4942   GCTCCATG GGCTAGCTACAACGA CATACCAC   593     1212   UGUGGGCA   4941   TGCCCAGA GGCTAGCTACAACGA CATACCAC   593     1213   GUCUGGGC A UGGAGCA   4944   CCCAAGTG GGCTAGCTACAACGA CATACCAC   593     1214   GGCAUGG G CAUUGCGA   4945   CTCGCAG GGCTAGCTACAACGA CATACCAC   593     1220   CAUGAGAG C AUUGCAGA   4946   ACCTCCA GGCTAGCTACAACGA CTCATACCAC   593     1221   UGCAGAGA C AUUGCAGA   4946   ACCTCCA GGCTAGCTACAACGA CTCATACCAC   593     1224   GAGCACUU G CGAGAGGU   4946   ACCTCCA GGCTAGCTACAACGA CTCATACCAC   593     1224   GAGCACUU G CGAGAGGU   4946   ACCTCCA GGCTAGCTACAACGA CTCATCCAC   593     1224   GAGCACUU G CGAGAGGU   4946   ACCTCCA GGCTAGCTACAACGA CTCATCCCT   593     1224   GAGCACUU G CGAGAGGU   4946   ACCTCCA GGCTAGCTACAACGA CTCATCCCT   593     1224   GAGCACUU A UCCAGGG   4950   GCCAGAGG GGCTAGCTACAACGA ACT	1156	AGGAUGGA A CACAGCGG	4926	CCGCTGTG GGCTAGCTACAACGA TCCATCCT	5914
1164   ACACAGGG G UGUGAGAA   4929   TTCTCACA GGCTAGCTACAACGA CGCTGTT   591     1166   ACAGGGGU G UGAGAAGU   4930   ACTTCTCA GGCTAGCTACAACGA ACCGCTGT   591     1173   UGUGAGAA G UGCAGCAA   4931   TTGCTGCA GGCTAGCTACAACGA ACCGCTGT   591     1175   UGAGAAGU G CAGCAAC   4932   GCTTGCTG GGCTAGCTACAACGA ACTTCTCA   592     1176   GAAGUGCA G CAAGCCCU   4933   AGGGCTTG GGCTAGCTACAACGA ACTTCTCA   592     1177   GAAGACGCU   4933   AGGGCTTG GGCTAGCTACAACGA TTGCTGCA   592     1182   UGCAGCAA G CCCUGUGC   4934   GCACAGGG GGCTAGCTACAACGA TTGCTGCA   592     1187   CAAGCCCU G UGCCCGAG   4935   CTCGGGCA GGCTAGCTACAACGA AGGGCTT   592     1188   AGCCCUGU G CCCGAGU   4936   CACTCGGG GGCTAGCTACAACGA AGGGCTT   592     1195   GUGCCCGA G UGUGCUAU   4937   ATAGCACA GGCTAGCTACAACGA ACCGGGCT   592     1197   GCCCGAGU G UGUGUUAU   4937   ATAGCACA GGCTAGCTACAACGA ACCTCGGG   592     1199   CCCGAGUG G UGUGUUGG   4938   CCATAGCA GGCTAGCTACAACGA ACCTCGG   592     1202   AGUGUGU A UGGUUGG   4940   CCAGAACCA GGCTAGCTACAACGA ACCTCGG   592     1205   GUGCUAUG G UCUGGGCA   4941   TGCCCAGA GGCTAGCTACAACGA ACCTCGG   592     1211   UGGUCUGG G CAUGGAGC   4942   GCTCCATG GGCTAGCTACAACGA CATAGCAC   592     1213   GUCUGGGC A UGGAGCC   4943   GTGCTCCA GGCTAGCTACAACGA CCCAGACCA   593     1214   GGCAUGGA G CAUGGAGC   4944   GCCCAGAC GGCTAGCTACAACGA GCCCAGACCA   593     1220   CAUGGAGC A UGUGCGG   4944   CGCCAGAC GGCTAGCTACAACGA GCCCAGACCA   593     1221   GUCUGGGC A UGUGCGG   4944   CGCCAGAC GGCTAGCTACAACGA GCCCAGAC   593     1222   CAUGGAGG C ACUUGCG   4944   CCCAGACTG GGCTAGCTACAACGA GCCCAGC   593     1224   GAGCACUU G CAGAGGGU   4945   CTCGCTCG GGCTAGCTACAACGA CTCCTCC   593     1224   GAGCACUU G CAGAGGGU   4946   ACCTCTCG GGCTAGCTACAACGA ACTGCC   593     1224   GAGCACUU G CAGAGGGU   4946   ACCTCTCG GGCTAGCTACAACGA CTCCACC   593     1224   GAGCACUU G CAGAGGGU   4946   ACCTCTCG GGCTAGCTACAACGA CCCCAGC   593     1224   GAGCACUU G CAGAGAG   4947   TGCCCTCA GGCTAGCTACAACGA CTCCCCC   593     1224   AGGUAGG G CAUUUCCG   4948   ACTGCTGG GGCTAGCTACAACGA CTCCACC	1158	GAUGGAAC A CAGCGGUG	4927	CACCGCTG GGCTAGCTACAACGA GTTCCATC	5915
1166	1161	GGAACACA G CGGUGUGA	4928	TCACACCG GGCTAGCTACAACGA TGTGTTCC	5916
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1175	1166	ACAGCGGU G UGAGAAGU	4930	ACTTCTCA GGCTAGCTACAACGA ACCGCTGT	5918
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1182	1175	UGAGAAGU G CAGCAAGC	4932	GCTTGCTG GGCTAGCTACAACGA ACTTCTCA	5920
1187	1178	GAAGUGCA G CAAGCCCU	4933	AGGGCTTG GGCTAGCTACAACGA TGCACTTC	5921
1189   AGCCCUGU G CCCGAGUG	1182	UGCAGCAA G CCCUGUGC	4934	GCACAGGG GGCTAGCTACAACGA TTGCTGCA	5922
1195 GUGCCCGA G UGUGCUAU 4937 ATAGCACA GGCTAGCTACAACGA TCGGGCAC 592 1197 GCCCGAGU G UGCUAUGG 4938 CCATAGCA GGCTAGCTACAACGA ACTCGGC 592 1199 CCGAGUGU G CUAUGGUC 4939 GACCATAG GGCTAGCTACAACGA ACACTCGG 592 1202 AGUGUGCU A UGGUCUGG 4940 CCAGACCA GGCTAGCTACAACGA ACACTCGG 592 1205 GUGCUAUG G UCUGGGCA 4941 TGCCCAGA GGCTAGCTACAACGA ACACCAC 592 1211 UGGUCUGG G CAUGGAGC 4942 GCTCCATG GGCTAGCTACAACGA CATAGCAC 592 1213 GUCUGGGC A UGGAGCC 4943 GTGCTCCA GGCTAGCTACAACGA CCAGACCA 593 1218 GGCAUGGA C CACUUGCG 4944 CGCAAGTG GGCTAGCTACAACGA CCAGACCA 593 1218 GGCAUGGA C CACUUGCG 4944 CGCAAGTG GGCTAGCTACAACGA CCCAGAC 1220 CAUGGAGC A CUUGCGA 4945 CTCGCAAG GGCTAGCTACAACGA CCCAGAC 1221 GAGCACUU G CGAGAGGU 4946 ACCTCTCG GGCTAGCTACAACGA ACGTCCC 593 1224 GAGCACUU G CGAGAGGU 4946 ACCTCTCG GGCTAGCTACAACGA ACGTCCC 593 1231 UGCGAGAG G UGAGGGCA 4947 TGCCCTCA GGCTAGCTACAACGA CTCCCCT 593 1231 UGCGAGAG G UGAGGGCA 4947 TGCCCTCA GGCTAGCTACAACGA CTCCCCT 593 1240 UGAGGGCA G UUACCAGU 4948 GGTAACTG GGCTAGCTACAACGA CTCCCCT 593 1240 UGAGGGCA G UUACCAGU 4949 ACTGGTAA GGCTAGCTACAACGA TCCCCCT 593 1241 AGUUACCA G UGCCAAUA 4951 TATTGGCA GGCTAGCTACAACGA TGCCCTCA 593 1242 AGUUACCA G UGCCAAUA 4951 TATTGGCA GGCTAGCTACAACGA ACTGGCCC 593 1243 AGGUGCCA A UAUCCAGG 4950 GCCACTGG GGCTAGCTACAACGA ACTGGCCC 593 1244 AGUUACCA G UGCCAAUA 4951 TATTGGCA GGCTAGCTACAACGA ACTGGCCC 593 1245 AGUGCCAA UAUCCAGG 4953 CCTGGATA GGCTAGCTACAACGA ACTGGCAC 593 1255 GUGCCAAUA UCCAGGG 4953 CCTGGATA GGCTAGCTACAACGA ACTGGCAC 593 1266 AUCCAGGA GUUGCUGG 4955 CCCAGAAA GGCTAGCTACAACGA ACTGGCAC 594 1256 AGGAGUUU G CUGCCAACA 4956 CTCCTCGA GGCTAGCTACAACGA ACTGGCAC 594 1267 AGGAGUUU G CUGCCAACA 4956 CTCCTCGA GGCTAGCTACAACGA ACTGGCAC 594 1268 AUCCAGGA GUUGCUGG 4955 CCCAGAAA GGCTAGCTACAACGA ACTGGCAC 594 1267 AGGAGUUU G CUGCCAAGA 4954 CTCCTGGA GGCTAGCTACAACGA ACTGGCAC 594 1267 AGGAGUUU G CUGCCAGA 4956 CTCCTCGA GGCTAGCTACAACGA ACTCGCC 594 1271 UGCUGGCU G CAAGAAGA 4955 CCCAAGAA GGCTAGCTACAACGA ACCACCA 594 1272 UGCUGGCU G CAAGAAGA 4956 CTCTCTGG GGCTAGCTACAACGA ACCCAC 594 1282 GCAAGAAG A UCUUGGG 4959 CCCAAA	1187	CAAGCCCU G UGCCCGAG	4935	CTCGGGCA GGCTAGCTACAACGA AGGGCTTG	5923
1197         GCCCGAGU G UGCUAUGG         4938         CCATAGCA GGCTACAACGA ACTCGGGC         592           1199         CCGAGUGU G CUAUGGUC         4939         GACCATAG GGCTAGCTACAACGA ACACTCGG         592           1202         AGUGUGCU A UGGUCUGG         4940         CCAGACCA GGCTAGCTACAACGA AGCACACT         592           1205         GUGCUAUG G UCUGGGCA         4941         TGCCCAGA GGCTAGCTACAACGA CAAACCA         592           1211         UGGUCUGG G CAUGGAGC         4942         GCTCCATG GGCTAGCTACAACGA CCAAACCA         593           1213         GUCUGGGC A UGGAGCAC         4943         GTGCTCCA GGCTAGCTACAACGA CCAAACCA         593           1218         GGCAUGGA G CACUUGCG         4944         CGCAAGTG GGCTAGCTACAACGA TCCATGCC         593           1220         CAUGGAGC A CUUGCGAG         4945         CTCGCAAG GGCTAGCTACAACGA TCCATGC         593           1224         GAGCACUU G CGAGAGGU         4946         ACCTCTCG GGCTAGCTACAACGA AGTGCTC         593           1224         GAGCACUU G CGAGAGGU         4947         TGCCCTCA GGCTAGCTACAACGA CTCTCACT         593           1231         UGCGAGAG G UAACCAU         4948         GGTAACTACAACGA CTCTCACT         593           1240         UGAGGCA G UAACCAU         4949         ACTGGTAA GGCTAGCTACAACGA TGCCTCA         593	1189	AGCCCUGU G CCCGAGUG	4936	CACTCGGG GGCTAGCTACAACGA ACAGGGCT	5924
1199         CCGAGUGU G CUAUGGUC         4939         GACCATAG GGCTAGCTACAACGA ACACTCGG         592           1202         AGUGUGCU A UGGUCUGG         4940         CCAGACCA GGCTAGCTACAACGA AGCACACT         592           1205         GUGCUAUG G UCUGGGCA         4941         TGCCCAGA GGCTAGCTACAACGA CATAGCAC         592           1211         UGGUCUGG G CAUGGAGC         4942         GCTCCATG GGCTAGCTACAACGA CCAGACCA         593           1218         GGCAUGA G CACUUGCG         4944         CGCAGTG GGCTAGCTACAACGA GCCCATGC         593           1220         CAUGGAGC A CUUGCGAG         4945         CTCGCAAG GGCTAGCTACAACGA GCTCCATG         593           1224         GAGCACUU G CGAGAGGU         4946         ACCTCTCG GGCTAGCTACAACGA ACTGCTC         593           1224         GAGCACUU G CGAGAGGU         4946         ACCTCTCG GGCTAGCTACAACGA ACTGCTC         593           1221         UGCGAGAGG G UGAGGGCA         4947         TGCCCTCA GGCTACCAACGA CTCCCCC         593           1224         GAGCACUU G CAGUUACC         4948         GGTAACTG GGCTACCAACGA CTCCCCC         593           1237         AGGUGAGG G UUACCAGU         4949         ACTGGTAA GGCTACAACGA TGCCCCC         593           1240         UGAGGGCA G UUACCAGU         4950         GGCACTGG GGCTAGCTACAACGA ACTGCCC         593 <td>1195</td> <td>GUGCCCGA G UGUGCUAU</td> <td>4937</td> <td></td> <td>5925</td>	1195	GUGCCCGA G UGUGCUAU	4937		5925
1202 AGUGUGCU A UGGUCUGG 4940 CCAGACCA GGCTAGCTACAACGA AGCACACT 592 1205 GUGCUAUG G UCUGGGCA 4941 TGCCCAGA GGCTAGCTACAACGA CATAGCAC 592 1211 UGGUCUGG G CAUGGAGC 4942 GCTCCATG GGCTAGCTACAACGA CCAGACCA 593 1213 GUCUGGGC A UGGAGCAC 4943 GTGCTCCA GGCTAGCTACAACGA CCCAGACC 593 1218 GGCAUGGA G CACUUGCG 4944 CGCAAGTG GGCTAGCTACAACGA CCCAGAC 593 1220 CAUGGAGC A CUUGCGAG 4945 CTCGCAAG GGCTAGCTACAACGA TCCATGCC 593 1224 GAGCACUU G CGAGAGGU 4946 ACCTCTCG GGCTAGCTACAACGA AAGTGCTC 593 1224 GAGCACUU G CGAGAGGU 4946 ACCTCTCG GGCTAGCTACAACGA AAGTGCTC 593 1227 AGGUGAGG G UGAGGGCA 4947 TGCCCTCA GGCTAGCTACAACGA CTCTCGCA 593 1237 AGGUGAGG G CAGUUACC 4948 GGTAACTG GGCTAGCTACAACGA CTCTCCGCA 593 1240 UGAGGGCA G UUACCAGU 4949 ACTGGTAA GGCTAGCTACAACGA CTCTCCCT 593 1241 GGGCAGUU A CCAGUGCC 4950 GGCACTG GGCTAGCTACAACGA AACTGCCC 593 1242 GGGCAGUU A CCAGUGCC 4950 GGCACTG GGCTAGCTACAACGA AACTGCCC 593 1243 GGGCAGUU A CCAGUGCC 4950 GGCACTG GGCTAGCTACAACGA AACTGCCC 593 1244 AGUUACCA G UGCCAAUA 4951 TATTGGCA GGCTAGCTACAACGA ACTGCCC 593 1245 CAGUGCCA A UAUCCAGG 4951 TATTGGCA GGCTAGCTACAACGA ACTGGCAC 594 1253 CAGUGCCA A UAUCCAGG 4953 CCTGGATA GGCTAGCTACAACGA ACTGGCAC 594 1255 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA ACTGGCAC 594 1255 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA ACTGGCAC 594 1256 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA ACTGGCAC 594 1257 GUUUGCUG CUGCAAGA 4955 CCAGCAAA GGCTAGCTACAACGA TCCTGGAT 594 1267 AGGAGUUU G CUGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA ACTGGCAC 594 1271 GUUUGCUG G CGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA AACTCCT 594 1271 GUUUGCUG G CGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA AACTCCT 594 1272 GUUUGCUG G CAAGAAGA 4957 TCTTGCAG GGCTAGCTACAACGA AACTCCT 594 1274 UGCUGGCU G CAAGAAGA 4959 TCTTGTG GGCTAGCTACAACGA AACTCCT 594 1274 UGCUGGCU G CAAGAAGA 4957 TCTTGCAG GGCTAGCTACAACGA CAGCAAAC 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA AGCCAGCA 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA AGCCAGCA 594 1292 CUUUGGGA G CCUGCAUU 4960 ATGCCAGG GGCTAGCTACAACGA CAGCCTCC	1197	GCCCGAGU G UGCUAUGG	4938	CCATAGCA GGCTAGCTACAACGA ACTCGGGC	5926
1205 GUGCUAUG G UCUGGGCA 4941 TGCCCAGA GGCTAGCTACAACGA CATAGCAC 592 1211 UGGUCUGG G CAUGGAGC 4942 GCTCCATG GGCTAGCTACAACGA CCAGACCA 593 1213 GUCUGGGC A UGGAGCAC 4943 GTGCTCCA GGCTAGCTACAACGA CCCAGACC 593 1218 GGCAUGGA G CACUUGCG 4944 CGCAAGTG GGCTAGCTACAACGA GCCCAGAC 593 1210 CAUGGAGC A CUUGCGAG 4945 CTCGCAAG GGCTAGCTACAACGA GCCCAGAC 593 1220 CAUGGAGC A CUUGCGAG 4945 CTCGCAAG GGCTAGCTACAACGA GCTCCATG 593 1224 GAGCACUU G CGAGAGGU 4946 ACCTCTCG GGCTAGCTACAACGA AGTGCTC 593 1231 UGCGACAG G UGAGGGCA 4947 TGCCCTCA GGCTAGCTACAACGA CTCTCGCA 593 1237 AGGUGAGG G CAGUUACC 4948 GGTAACTG GGCTAGCTACAACGA CTCTCGCA 593 1240 UGAGGGCA G UUACCAGU 4949 ACTGGTAA GGCTAGCTACAACGA CCTCACCT 593 1241 GGGCAGUU A CCAGUGCC 4950 GGCACTGG GGCTAGCTACAACGA ACCGCCC 593 1247 AGUUACCA G UGCCAAUA 4951 TATTGGCA GGCTAGCTACAACGA ACTGCCC 593 1249 UUACCAGU G CCAAUAUC 4952 GATATTGG GGCTAGCTACAACGA ACTGGCAC 594 1255 CAGUGCCA A UAUCCAGG 4953 CCTGGATA GGCTAGCTACAACGA TGCGCTC 594 1255 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA TGCGCAC 594 1255 GUGCCAAU A UCCAGGAG 4955 CCCAGCAAA GGCTAGCTACAACGA TGCGCACTG 594 1263 AUCCAGGA G UUUGCUGG 4956 GCAGCCAG GGCTAGCTACAACGA TCCTGGAT 594 1264 UGAGGGC G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA ACTGGCAC 594 1265 AGGAGUUU G CUGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA ACCTGCTC 594 1271 GUUUGCUG G CUGCAAGA 4958 TCTTCTTG GGCTAGCTACAACGA AACTCCT 594 1272 UGCUGGCU G CAAGAAGA 4958 TCTTCTTG GGCTAGCTACAACGA AACTCCT 594 1274 UGCUGGCU G CAAGAAGA 4958 TCTTCTTG GGCTAGCTACAACGA AACTCCT 594 1274 UGCUGGCU G CAAGAAGA 4959 CCCAAAAGA GGCTAGCTACAACGA CAGCAAAC 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA CAGCAAAC 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAAGA GGCTAGCTACAACGA CAGCAAAC 594 1292 CUUUGGGA G CCUGCAU 4960 ATGCCAGG GGCTAGCTACAACGA CAGCAAAC 594 1292 CUUUGGGA G CCUGCAU 4960 ATGCCAGG GGCTAGCTACAACGA CAGCCAAAC 594 1297 GGAGCCUG G CAUUUCUG 4960 ATGCCAGG GGCTAGCTACAACGA CAGCCACC 594 1297 GGAGCCUG G CAUUUCUG 4960 ATGCCAGG GGCTAGCTACAACGA CAGCCACC 594	1199	CCGAGUGU G CUAUGGUC	4939	GACCATAG GGCTAGCTACAACGA ACACTCGG	5927
1211 UGGUCUGG G CAUGGAGC 4942 GCTCCATG GGCTAGCTACAACGA CCAGACCA 593 1213 GUCUGGGC A UGGAGCAC 4943 GTGCTCCA GGCTAGCTACAACGA GCCCAGAC 593 1218 GGCAUGGA G CACUUGCG 4944 CGCAAGTG GGCTAGCTACAACGA TCCATGCC 593 1220 CAUGGAGC A CUUGCGAG 4945 CTCGCAAG GGCTAGCTACAACGA TCCATGC 593 1224 GAGCACUU G CGAGAGGU 4946 ACCTCTCG GGCTAGCTACAACGA AAGTGCTC 593 1231 UGCGAGAG G UGAGGGCA 4947 TGCCCTCA GGCTAGCTACAACGA AAGTGCTC 593 1237 AGGUGAGG G CAGUUACC 4948 GGTAACTG GGCTAGCTACAACGA CCTCACCT 593 1240 UGAGGGCA G UUACCAGU 4949 ACTGGTAA GGCTAGCTACAACGA TGCCCTCA 593 1241 GGGCAGUU A CCAGUGCC 4950 GGCACTGG GGCTAGCTACAACGA TGCCCTCA 593 1242 AGUUACCA G UGCCAAUA 4951 TATTGGCA GGCTAGCTACAACGA TGGTAACT 593 1249 UUACCAGU G CCAAUAUC 4952 GATATTGG GGCTAGCTACAACGA TGGTAAC 594 1253 CAGUGCCA A UAUCCAGG 4953 CCTGGATA GGCTAGCTACAACGA TGGCACTG 594 1255 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA ACTGGTAC 594 1255 GUGCCAAU A UCCAGGAG 4955 CCAGCAAA GGCTAGCTACAACGA ACTGGCAC 594 1263 AUCCAGGA G UUUGCUGG 4955 CCAGCAAA GGCTAGCTACAACGA ACTGGCAC 594 1264 AGGAGUUU G CUGCCUGC 4956 GCAGCCAG GGCTAGCTACAACGA ACTGGCAC 594 1265 AUCCAGGA G UUUGCUGG 4955 CCAGCAAA GGCTAGCTACAACGA ACTGGCAC 594 1267 AGGAGUUU G CUGCCUGC 4956 GCAGCCAG GGCTAGCTACAACGA ACTCCTC 594 1271 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA CAGCAAAC 594 1274 UGCUGGCU G CAAGAAGA 4957 TCTTGCAG GGCTAGCTACAACGA CAGCAAAC 594 1274 UGCUGGCU G CAAGAAGA 4958 TCTTCTTG GGCTAGCTACAACGA CAGCAAAC 594 1274 UGCUGGCU G CAAGAAGA 4957 TCTTGCAG GGCTAGCTACAACGA CAGCAAAC 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA CTCCTTGC 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA CTCCTTGC 594 1292 CUUUGGGA G CUUGCUG 4960 ATGCCAGG GGCTAGCTACAACGA CTCCCAAAG 594 1297 GGAGCCUG G CAUUCUG 4960 ATGCCAGG GGCTAGCTACAACGA CAGCAAAC 594 1297 GGAGCCUG G CAUUCUG 4960 ATGCCAGG GGCTAGCTACAACGA CAGCACCC 594	1202	AGUGUGCU A UGGUCUGG	4940	CCAGACCA GGCTAGCTACAACGA AGCACACT	5928
1213 GUCUGGGC A UGGAGCAC 4943 GTGCTCCA GGCTAGCTACAACGA GCCCAGAC 593 1218 GGCAUGGA G CACUUGCG 4944 CGCAAGTG GGCTAGCTACAACGA TCCATGCC 593 1220 CAUGGAGC A CUUGCGAG 4945 CTCGCAAG GGCTAGCTACAACGA GCTCCATG 593 1224 GAGCACUU G CGAGAGGU 4946 ACCTCTCG GGCTAGCTACAACGA AAGTGCTC 593 1231 UGCGAGAG G UGAGGGCA 4947 TGCCCTCA GGCTAGCTACAACGA CTCTCGCA 593 1237 AGGUGAGG G CAGUUACC 4948 GGTAACTG GGCTAGCTACAACGA CTCTCGCA 593 1240 UGAGGGCA G UUACCAGU 4949 ACTGGTAA GGCTAGCTACAACGA CCTCACCT 593 1241 GGGCAGUU A CCAGUGCC 4950 GGCACTGG GGCTAGCTACAACGA TGCCCTCA 593 1242 AGUUACCA G UGCCAAUA 4951 TATTGGCA GGCTAGCTACAACGA ACTGCCC 593 1244 UUACCAGU G CCAAUAUC 4952 GATATTGG GGCTAGCTACAACGA ACTGGTAA 594 1253 CAGUGCCA A UAUCCAGG 4953 CCTGGATA GGCTAGCTACAACGA ACTGGTAA 594 1253 CAGUGCCA A UAUCCAGG 4954 CTCCTGGA GGCTAGCTACAACGA ATTGGCAC 594 1255 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA ATTGGCAC 594 1263 AUCCAGGA G UUUGCUGG 4955 CCAGCAAA GGCTAGCTACAACGA ATTGGCAC 594 1267 AGGAGUUU G CUGGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA ACTCGGT 594 1267 AGGAGUUU G CUGGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA ACTCCT 594 1271 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA AACTCCT 594 1274 UGCUGGCU G CAAGAAGA 4958 TCTTCTTG GGCTAGCTACAACGA ACCAGCA 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAAGA GGCTAGCTACAACGA AGCCAGCA 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAAGA GGCTAGCTACAACGA CTCCTTGC 594 1292 CUUUGGGA G CCUGCCAU 4960 ATGCCAGG GGCTAGCTACAACGA CTCCTTGC 594 1297 GGAGCCUG G CAUUUCUG 4960 ATGCCAGG GGCTAGCTACAACGA CTCCTTGC 594 1297 GGAGCCUG G CAUUUCUG 4960 ATGCCAGG GGCTAGCTACAACGA CTCCCAAAG 594 1297 GGAGCCUG G CAUUUCUG 4960 ATGCCAGG GGCTAGCTACAACGA CTCCCAAAG 594 1297 GGAGCCUG G CAUUUCUG 4960 ATGCCAGG GGCTAGCTACAACGA CAGCAAAC 594 1297 GGAGCCUG G CAUUUCUG 4960 ATGCCAGG GGCTAGCTACAACGA CAGCAACC 594 1297 GGAGCCUG G CAUUUCUG 4960 ATGCCAGG GGCTAGCTACAACGA CAGCAACC 594 1297 GGAGCCUG G CAUUUCUG 4961 CAAGAAAG GGCTAGCTACAACGA CAGCACCC	1205	GUGCUAUG G UCUGGGCA	4941	TGCCCAGA GGCTAGCTACAACGA CATAGCAC	5929
1218 GGCAUGGA G CACUUGCG 4944 CGCAAGTG GGCTAGCTACAACGA TCCATGCC 593 1220 CAUGGAGC A CUUGCGAG 4945 CTCGCAAG GGCTAGCTACAACGA GCTCCATG 593 1224 GAGCACUU G CGAGAGGU 4946 ACCTCTCG GGCTAGCTACAACGA AAGTGCTC 593 1231 UGCGAGAG G UGAGGGCA 4947 TGCCCTCA GGCTAGCTACAACGA CTCTCGCA 593 1237 AGGUGAGG G CAGUUACC 4948 GGTAACTG GGCTAGCTACAACGA CTCCACCT 593 1240 UGAGGGCA G UUACCAGU 4949 ACTGGTAA GGCTAGCTACAACGA TGCCCTCA 593 1243 GGGCAGUU A CCAGUGCC 4950 GGCACTGG GGCTAGCTACAACGA TGCCCTCA 593 1247 AGUUACCA G UGCCAAUA 4951 TATTGGCA GGCTAGCTACAACGA ACTGCCC 593 1249 UUACCAGU G CCAAUAUC 4952 GATATTGG GGCTAGCTACAACGA ACTGGTAA 594 1253 CAGUGCCA A UAUCCAGG 4953 CCTGGATA GGCTAGCTACAACGA ACTGGTAA 594 1253 CAGUGCCA A UAUCCAGG 4953 CCTGGATA GGCTAGCTACAACGA TGGCACTG 594 1255 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA ATTGGCAC 594 1263 AUCCAGGA G UUUGCUGG 4955 CCAGCAAA GGCTAGCTACAACGA ACTGCTC 594 1267 AGGAGUUU G CUGGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA ACTCGTAC 594 1267 AGGAGUUU G CUGGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA ACTCGTAC 594 1271 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA ACTCCT 594 1274 UGCUGGCU G CAAGAAGA 4957 TCTTGCAG GGCTAGCTACAACGA ACCCAGCA 594 1282 GCAAGAAG AUCUUUGGG 4959 CCCAAAAGA GGCTAGCTACAACGA ACCCAGCA 594 1282 GCAAGAAG AUCUUUGGG 4959 CCCAAAAGA GGCTAGCTACAACGA ACCCAGCA 594 1292 CUUUGGGA G CCUGGCAU 4960 ATGCCAGG GGCTAGCTACAACGA CTCCTTGC 594 1297 GGAGCCUG CAUUUCUG 4961 CAGAAATA GGCTAGCTACAACGA CCCCACAAG 594 1297 GGAGCCUG CAUUUCUG 4961 CAGAAATA GGCTAGCTACAACGA CCCCAAAG	1211	UGGUCUGG G CAUGGAGC	4942	GCTCCATG GGCTAGCTACAACGA CCAGACCA	5930
1220 CAUGGAGC A CUUGCGAG 4945 CTCGCAAG GGCTAGCTACAACGA GCTCCATG 593 1224 GAGCACUU G CGAGAGGU 4946 ACCTCTCG GGCTAGCTACAACGA AAGTGCTC 593 1231 UGCGAGAG G UGAGGGCA 4947 TGCCCTCA GGCTAGCTACAACGA CTCTCGCA 593 1237 AGGUGAGG G CAGUUACC 4948 GGTAACTG GGCTAGCTACAACGA CTCTCACCT 593 1240 UGAGGGCA G UUACCAGU 4949 ACTGGTAA GGCTAGCTACAACGA TGCCCTCA 593 1247 AGGUACCA G UGCCAAUA 4950 GGCACTGG GGCTAGCTACAACGA AACTGCCC 593 1247 AGGUACCA G UGCCAAUA 4951 TATTGGCA GGCTAGCTACAACGA TGGTAACT 593 1249 UUACCAGU G CCAAUAUC 4952 GATATTGG GGCTAGCTACAACGA ACTGGTAA 594 1253 CAGUGCCA A UAUCCAGG 4953 CCTGGATA GGCTAGCTACAACGA ACTGGTAA 594 1255 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA ATTGGCAC 594 1263 AUCCAGGA G UUUGCUGG 4955 CCAGCAAA GGCTAGCTACAACGA ATTGGCAC 594 1267 AGGAGUUU G CUGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA AACTCCT 594 1271 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA AACTCCT 594 1274 UGCUGGCU G CAAGAAGA 4958 TCTTCTTG GGCTAGCTACAACGA ACCAAACCA 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAAGA GGCTAGCTACAACGA CTTCTTGC 594 1292 CUUUGGGA G CUUGCAU 4960 ATGCCAGG GGCTAGCTACAACGA TCCCAAAG 594 1297 GGAGCCUG G CUUUCUGG 4961 CAGAAATG GGCTAGCTACAACGA TCCCAAAG 594 1297 GGAGCCUG G CUUUCUGG 4961 CAGAAATG GGCTAGCTACAACGA TCCCAAAG 594 1297 GGAGCCUG G CUUUCUGG 4960 ATGCCAGG GGCTAGCTACAACGA TCCCAAAG 594 1297 GGAGCCUG G CUUUCUGG 4961 CAGAAATG GGCTAGCTACAACGA TCCCAAAG 594 1297 GGAGCCUG G CUUUCUGG 4961 CAGAAATG GGCTAGCTACAACGA TCCCAAAG 594 1297 GGAGCCUG G CUUUCUGG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCCCCC 594	1213	GUCUGGGC A UGGAGCAC	4943	GTGCTCCA GGCTAGCTACAACGA GCCCAGAC	5931
1224 GAGCACUU G CGAGAGGU 4946 ACCTCTCG GGCTAGCTACAACGA AAGTGCTC 593 1231 UGCGAGAG G UGAGGGCA 4947 TGCCCTCA GGCTAGCTACAACGA CTCTCGCA 593 1237 AGGUGAGG G CAGUUACC 4948 GGTAACTG GGCTAGCTACAACGA CTCTCACCT 593 1240 UGAGGGCA G UUACCAGU 4949 ACTGGTAA GGCTAGCTACAACGA TGCCCTCA 593 1243 GGGCAGUU A CCAGUGCC 4950 GGCACTGG GGCTAGCTACAACGA AACTGCCC 593 1247 AGUUACCA G UGCCAAUA 4951 TATTGGCA GGCTAGCTACAACGA TGGTAACT 593 1249 UUACCAGU G CCAAUAUC 4952 GATATTGG GGCTAGCTACAACGA ACTGGTAA 594 1253 CAGUGCCA A UAUCCAGG 4953 CCTGGATA GGCTAGCTACAACGA ATTGGCAC 594 1255 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA ATTGGCAC 594 1263 AUCCAGGA G UUUGCUGG 4955 CCAGCAAA GGCTAGCTACAACGA ATTGGCAC 594 1267 AGGAGUUU G CUGGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA AACTCCT 594 1271 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA AACTCCT 594 1274 UGCUGGCU G CAAGAAGA 4958 TCTTCTTG GGCTAGCTACAACGA AGCCAGCA 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAGAAG GGCTAGCTACAACGA CTCTTTGC 594 1292 CUUUGGGA G CCUGGCAU 4960 ATGCCAGG GGCTAGCTACAACGA CTTCTTGC 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGCCAAAC 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGCACCC 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGCACC 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594	1218	GGCAUGGA G CACUUGCG	4944	CGCAAGTG GGCTAGCTACAACGA TCCATGCC	5932
1231 UGCGAGAG G UGAGGGCA 4947 TGCCCTCA GGCTAGCTACAACGA CTCTCGCA 593 1237 AGGUGAGG G CAGUUACC 4948 GGTAACTG GGCTAGCTACAACGA CTCTCACCT 593 1240 UGAGGGCA G UUACCAGU 4949 ACTGGTAA GGCTAGCTACAACGA TGCCCTCA 593 1243 GGGCAGUU A CCAGUGCC 4950 GGCACTG GGCTAGCTACAACGA AACTGCCC 593 1247 AGUUACCA G UGCCAAUA 4951 TATTGGCA GGCTAGCTACAACGA TGGTAACT 593 1249 UUACCAGU G CCAAUAUC 4952 GATATTGG GGCTAGCTACAACGA ACTGGTAA 594 1253 CAGUGCCA A UAUCCAGG 4953 CCTGGATA GGCTAGCTACAACGA TGGCACTG 594 1255 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA ATTGGCAC 594 1263 AUCCAGGA G UUUGCUGG 4955 CCAGCAAA GGCTAGCTACAACGA TCCTGGAT 594 1267 AGGAGUUU G CUGGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA AACTCCT 594 1271 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA CAGCAAAC 594 1274 UGCUGGCU G CAAGAAGA 4957 TCTTGCAG GGCTAGCTACAACGA CAGCAAAC 594 1282 GCAAGAAG A UCUUUGGG 4958 TCTTCTTG GGCTAGCTACAACGA AGCCAGCA 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA CTCTTGC 594 1292 CUUUGGGA G CCUGGCAU 4960 ATGCCAGG GGCTAGCTACAACGA TCCCCAAAG 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594	1220	CAUGGAGC A CUUGCGAG	4945	CTCGCAAG GGCTAGCTACAACGA GCTCCATG	5933
1237 AGGUGAGG G CAGUUACC 4948 GGTAACTG GGCTAGCTACAACGA CCTCACCT 593 1240 UGAGGGCA G UUACCAGU 4949 ACTGGTAA GGCTAGCTACAACGA TGCCCTCA 593 1243 GGGCAGUU A CCAGUGCC 4950 GGCACTGG GGCTAGCTACAACGA AACTGCCC 593 1247 AGUUACCA G UGCCAAUA 4951 TATTGGCA GGCTAGCTACAACGA TGGTAACT 593 1249 UUACCAGU G CCAAUAUC 4952 GATATTGG GGCTAGCTACAACGA ACTGGTAA 594 1253 CAGUGCCA A UAUCCAGG 4953 CCTGGATA GGCTAGCTACAACGA TGGCACTG 594 1255 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA ATTGGCAC 594 1263 AUCCAGGA G UUUGCUGG 4955 CCAGCAAA GGCTAGCTACAACGA TCCTGGAT 594 1267 AGGAGUUU G CUGGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA AACTCCT 594 1267 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA AAACTCCT 594 1271 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA CAGCAAAC 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA AGCCAGCA 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA CTTCTTGC 594 1292 CUUUGGGA G CCUGGCAU 4960 ATGCCAGG GGCTAGCTACAACGA TCCCAAAG 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGCACCC 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGCACCC 594	1224	GAGCACUU G CGAGAGGU	4946	ACCTCTCG GGCTAGCTACAACGA AAGTGCTC	5934
1240 UGAGGGCA G UUACCAGU 4949 ACTGGTAA GGCTAGCTACAACGA TGCCCTCA 593 1243 GGGCAGUU A CCAGUGCC 4950 GGCACTGG GGCTAGCTACAACGA AACTGCCC 593 1247 AGUUACCA G UGCCAAUA 4951 TATTGGCA GGCTAGCTACAACGA TGGTAACT 593 1249 UUACCAGU G CCAAUAUC 4952 GATATTGG GGCTAGCTACAACGA ACTGGTAA 594 1253 CAGUGCCA A UAUCCAGG 4953 CCTGGATA GGCTAGCTACAACGA TGGCACTG 594 1255 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA ATTGGCAC 594 1263 AUCCAGGA G UUUGCUGG 4955 CCAGCAAA GGCTAGCTACAACGA TCCTGGAT 594 1267 AGGAGUUU G CUGGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA AAACTCCT 594 1271 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA CAGCAAAC 594 1274 UGCUGGCU G CAAGAAGA 4958 TCTTCTTG GGCTAGCTACAACGA AGCCAGCA 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA CTTCTTGC 594 1292 CUUUGGGA G CCUGGCAU 4960 ATGCCAGG GGCTAGCTACAACGA CAGCCACG 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594 1297 GGAGCCUG G CAUUUCUG 4960 ATGCCAGG GGCTAGCTACAACGA CAGGCTCC 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594	1231	UGCGAGAG G UGAGGGCA	4947	TGCCCTCA GGCTAGCTACAACGA CTCTCGCA	5935
GGCAGUU A CCAGUGCC 4950 GGCACTGG GGCTAGCTACAACGA AACTGCCC 593  1247 AGUUACCA G UGCCAAUA 4951 TATTGGCA GGCTAGCTACAACGA TGGTAACT 593  1249 UUACCAGU G CCAAUAUC 4952 GATATTGG GGCTAGCTACAACGA ACTGGTAA 594  1253 CAGUGCCA A UAUCCAGG 4953 CCTGGATA GGCTAGCTACAACGA TGGCACTG 594  1255 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA ATTGGCAC 594  1263 AUCCAGGA G UUUGCUGG 4955 CCAGCAAA GGCTAGCTACAACGA TCCTGGAT 594  1267 AGGAGUUU G CUGGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA AAACTCCT 594  1271 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA CAGCAAAC 594  1274 UGCUGGCU G CAAGAAGA 4958 TCTTCTTG GGCTAGCTACAACGA AGCCAGCA 594  1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA CTTCTTGC 594  1292 CUUUGGGA G CCUGGCAU 4960 ATGCCAGG GGCTAGCTACAACGA CAGGCTCC 594  1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594  1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594	1237	AGGUGAGG G CAGUUACC	4948	GGTAACTG GGCTAGCTACAACGA CCTCACCT	5936
1243 GGGCAGUU A CCAGUGCC 4950 GGCACTGG GGCTAGCTACAACGA AACTGCCC 593 1247 AGUUACCA G UGCCAAUA 4951 TATTGGCA GGCTAGCTACAACGA TGGTAACT 593 1249 UUACCAGU G CCAAUAUC 4952 GATATTGG GGCTAGCTACAACGA ACTGGTAA 594 1253 CAGUGCCA A UAUCCAGG 4953 CCTGGATA GGCTAGCTACAACGA TGGCACTG 594 1255 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA ATTGGCAC 594 1263 AUCCAGGA G UUUGCUGG 4955 CCAGCAAA GGCTAGCTACAACGA TCCTGGAT 594 1267 AGGAGUUU G CUGGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA AAACTCCT 594 1271 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA CAGCAAAC 594 1274 UGCUGGCU G CAAGAAGA 4958 TCTTCTTG GGCTAGCTACAACGA AGCCAGCA 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA CTTCTTGC 594 1292 CUUUGGGA G CCUGGCAU 4960 ATGCCAGG GGCTAGCTACAACGA CAGCCACG 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594	1240	UGAGGGCA G UUACCAGU	4949	ACTGGTAA GGCTAGCTACAACGA TGCCCTCA	5937
1247 AGUUACCA G UGCCAAUA 4951 TATTGGCA GGCTAGCTACAACGA TGGTAACT 593 1249 UUACCAGU G CCAAUAUC 4952 GATATTGG GGCTAGCTACAACGA ACTGGTAA 594 1253 CAGUGCCA A UAUCCAGG 4953 CCTGGATA GGCTAGCTACAACGA TGGCACTG 594 1255 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA ATTGGCAC 594 1263 AUCCAGGA G UUUGCUGG 4955 CCAGCAAA GGCTAGCTACAACGA TCCTGGAT 594 1267 AGGAGUUU G CUGGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA AAACTCCT 594 1271 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA CAGCAAAC 594 1274 UGCUGGCU G CAAGAAGA 4958 TCTTCTTG GGCTAGCTACAACGA AGCCAGCA 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA CTTCTTGC 594 1292 CUUUGGGA G CCUGGCAU 4960 ATGCCAGG GGCTAGCTACAACGA CAGCCACG 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594	1243	GGGCAGUU A CCAGUGCC		GGCACTGG GGCTAGCTACAACGA AACTGCCC	5938
1249 UUACCAGU G CCAAUAUC 4952 GATATTGG GGCTAGCTACAACGA ACTGGTAA 594 1253 CAGUGCCA A UAUCCAGG 4953 CCTGGATA GGCTAGCTACAACGA TGGCACTG 594 1255 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA ATTGGCAC 594 1263 AUCCAGGA G UUUGCUGG 4955 CCAGCAAA GGCTAGCTACAACGA TCCTGGAT 594 1267 AGGAGUUU G CUGGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA AAACTCCT 594 1271 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA CAGCAAAC 594 1274 UGCUGGCU G CAAGAAGA 4958 TCTTCTTG GGCTAGCTACAACGA AGCCAGCA 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA CTTCTTGC 594 1292 CUUUGGGA G CCUGGCAU 4960 ATGCCAGG GGCTAGCTACAACGA CCCCAAAG 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594	1247	AGUUACCA G UGCCAAUA		TATTGGCA GGCTAGCTACAACGA TGGTAACT	5939
CAGUGCCA A UAUCCAGG 4953 CCTGGATA GGCTAGCTACAACGA TGGCACTG 594  1255 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA ATTGGCAC 594  1263 AUCCAGGA G UUUGCUGG 4955 CCAGCAAA GGCTAGCTACAACGA TCCTGGAT 594  1267 AGGAGUUU G CUGGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA AAACTCCT 594  1271 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA CAGCAAAC 594  1274 UGCUGGCU G CAAGAAGA 4958 TCTTCTTG GGCTAGCTACAACGA AGCCAGCA 594  1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA CTTCTTGC 594  1292 CUUUGGGA G CCUGGCAU 4960 ATGCCAGG GGCTAGCTACAACGA TCCCAAAG 594  1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594	1249	UUACCAGU G CCAAUAUC		GATATTGG GGCTAGCTACAACGA ACTGGTAA	5940
1255 GUGCCAAU A UCCAGGAG 4954 CTCCTGGA GGCTAGCTACAACGA ATTGGCAC 594 1263 AUCCAGGA G UUUGCUGG 4955 CCAGCAAA GGCTAGCTACAACGA TCCTGGAT 594 1267 AGGAGUUU G CUGGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA AAACTCCT 594 1271 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA CAGCAAAC 594 1274 UGCUGGCU G CAAGAAGA 4958 TCTTCTTG GGCTAGCTACAACGA AGCCAGCA 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA CTTCTTGC 594 1292 CUUUGGGA G CCUGGCAU 4960 ATGCCAGG GGCTAGCTACAACGA TCCCAAAG 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594	1253	CAGUGCCA A UAUCCAGG	<del>                                     </del>	CCTGGATA GGCTAGCTACAACGA TGGCACTG	5941
AUCCAGGA G UUUGCUGG 4955 CCAGCAAA GGCTAGCTACAACGA TCCTGGAT 594 1267 AGGAGUUU G CUGGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA AAACTCCT 594 1271 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA CAGCAAAC 594 1274 UGCUGGCU G CAAGAAGA 4958 TCTTCTTG GGCTAGCTACAACGA AGCCAGCA 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA CTTCTTGC 594 1292 CUUUGGGA G CCUGGCAU 4960 ATGCCAGG GGCTAGCTACAACGA TCCCAAAG 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594	1255	GUGCCAAU A UCCAGGAG		CTCCTGGA GGCTAGCTACAACGA ATTGGCAC	5942
1267 AGGAGUUU G CUGGCUGC 4956 GCAGCCAG GGCTAGCTACAACGA AAACTCCT 594 1271 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA CAGCAAAC 594 1274 UGCUGGCU G CAAGAAGA 4958 TCTTCTTG GGCTAGCTACAACGA AGCCAGCA 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA CTTCTTGC 594 1292 CUUUGGGA G CCUGGCAU 4960 ATGCCAGG GGCTAGCTACAACGA TCCCAAAG 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594	1263	AUCCAGGA G UUUGCUGG	<del>                                      </del>	CCAGCAAA GGCTAGCTACAACGA TCCTGGAT	5943
1271 GUUUGCUG G CUGCAAGA 4957 TCTTGCAG GGCTAGCTACAACGA CAGCAAAC 594 1274 UGCUGGCU G CAAGAAGA 4958 TCTTCTTG GGCTAGCTACAACGA AGCCAGCA 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA CTTCTTGC 594 1292 CUUUGGGA G CCUGGCAU 4960 ATGCCAGG GGCTAGCTACAACGA TCCCAAAG 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594	1267	AGGAGUUU G CUGGCUGC		GCAGCCAG GGCTAGCTACAACGA AAACTCCT	5944
1274 UGCUGGCU G CAAGAAGA 4958 TCTTCTTG GGCTAGCTACAACGA AGCCAGCA 594 1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA CTTCTTGC 594 1292 CUUUGGGA G CCUGGCAU 4960 ATGCCAGG GGCTAGCTACAACGA TCCCAAAG 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594	1271	GUUUGCUG G CUGCAAGA		TCTTGCAG GGCTAGCTACAACGA CAGCAAAC	5945
1282 GCAAGAAG A UCUUUGGG 4959 CCCAAAGA GGCTAGCTACAACGA CTTCTTGC 594 1292 CUUUGGGA G CCUGGCAU 4960 ATGCCAGG GGCTAGCTACAACGA TCCCAAAG 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594	1274	UGCUGGCU G CAAGAAGA		TCTTCTTG GGCTAGCTACAACGA AGCCAGCA	5946
1292 CUUUGGGA G CCUGGCAU 4960 ATGCCAGG GGCTAGCTACAACGA TCCCAAAG 594 1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594	1282	GCAAGAAG A UCUUUGGG	+	CCCAAAGA GGCTAGCTACAACGA CTTCTTGC	5947
1297 GGAGCCUG G CAUUUCUG 4961 CAGAAATG GGCTAGCTACAACGA CAGGCTCC 594	1292	CUUUGGGA G CCUGGCAU	+	ATGCCAGG GGCTAGCTACAACGA TCCCAAAG	5948
COORDAN COMPANY COMPAN	1297	GGAGCCUG G CAUUUCUG	<del></del>	CAGAAATG GGCTAGCTACAACGA CAGGCTCC	5949
1299  AGCCUGGC A UUUCUGCC   4962   GGCAGAAA GGCTAGCTACAACGA GCCAGGCT   598	1299	AGCCUGGC A UUUCUGCC		GGCAGAAA GGCTAGCTACAACGA GCCAGGCT	5950

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1305	GCAUUUCU G CCGGAGAG	4963	CTCTCCGG GGCTAGCTACAACGA AGAAATGC	5951
1313	GCCGGAGA G CUUUGAUG	4964	CATCAAAG GGCTAGCTACAACGA TCTCCGGC	5952
1319	GAGCUUUG A UGGGGACC	4965	GGTCCCCA GGCTAGCTACAACGA CAAAGCTC	5953
1325	UGAUGGGG A CCCAGCCU	4966	AGGCTGGG GGCTAGCTACAACGA CCCCATCA	.5954
1330	GGGACCCA G CCUCCAAC	4967	GTTGGAGG GGCTAGCTACAACGA TGGGTCCC	5955
1337	AGCCUCCA A CACUGCCC	4968	GGGCAGTG GGCTAGCTACAACGA TGGAGGCT	5956
1339	CCUCCAAC A CUGCCCCG	4969	CGGGCAG GGCTAGCTACAACGA GTTGGAGG	5957
1342	CCAACACU G CCCCGCUC	4970	GAGCGGGG GGCTAGCTACAACGA AGTGTTGG	5958
1347	ACUGCCCC G CUCCAGCC	4971	GGCTGGAG GGCTAGCTACAACGA GGGGCAGT	5959
1353	CCGCUCCA G CCAGAGCA	4972	TGCTCTGG GGCTAGCTACAACGA TGGAGCGG	5960
1359	CAGCCAGA G CAGCUCCA	4973	TGGAGCTG GGCTAGCTACAACGA TCTGGCTG	5961
1362	CCAGAGCA G CUCCAAGU	4974	ACTTGGAG GGCTAGCTACAACGA TGCTCTGG	5962
1369	AGCUCCAA G UGUUUGAG	4975	CTCAAACA GGCTAGCTACAACGA TTGGAGCT	5963
1371	CUCCAAGU G UUUGAGAC	4976	GTCTCAAA GGCTAGCTACAACGA ACTTGGAG	5964
1378	UGUUUGAG A CUCUGGAA	4977	TTCCAGAG GGCTAGCTACAACGA CTCAAACA	5965
1390	UGGAAGAG A UCACAGGU	4978	ACCTGTGA GGCTAGCTACAACGA CTCTTCCA	5966
1393	AAGAGAUC A CAGGUUAC	4979	GTAACCIG GGCTAGCTACAACGA GATCTCTT	5967
1397	GAUCACAG G UUACCUAU	4980	ATAGGTAA GGCTAGCTACAACGA CTGTGATC	5968
1400	CACAGGUU A CCUAUACA	4981	TGTATAGG GGCTAGCTACAACGA AACCTGTG	5969
1404	GGUUACCU A UACAUCUC	4982	GAGATGTA GGCTAGCTACAACGA AGGTAACC	5970
1406	UUACCUAU A CAUCUCAG	4983	CTGAGATG GGCTAGCTACAACGA ATAGGTAA	5971
1408	ACCUAUAC A UCUCAGCA	4984	TGCTGAGA GGCTAGCTACAACGA GTATAGGT	5972
1414	ACAUCUCA G CAUGGCCG	4985	CGGCCATG GGCTAGCTACAACGA TGAGATGT	5973
1416	AUCUCAGC A UGGCCGGA	4986	TCCGGCCA GGCTAGCTACAACGA GCTGAGAT	5974
1419	UCAGCAUG G CCGGACAG	4987	CTGTCCGG GGCTAGCTACAACGA CATGCTGA	5975
1424	AUGGCCGG A CAGCCUGC	4988	GCAGGCTG GGCTAGCTACAACGA CCGGCCAT	5976
1427	GCCGGACA G CCUGCCUG	4989	CAGGCAGG GGCTAGCTACAACGA TGTCCGGC	5977
1431	GACAGCCU G CCUGACCU	4990	AGGTCAGG GGCTAGCTACAACGA AGGCTGTC	5978
1436	CCUGCCUG A CCUCAGCG	4991	CGCTGAGG GGCTAGCTACAACGA CAGGCAGG	5979
1442	UGACCUCA G CGUCUUCC	4992	GGAAGACG GGCTAGCTACAACGA TGAGGTCA	5980
1444	ACCUCAGC G UCUUCCAG	4993	CTGGAAGA GGCTAGCTACAACGA GCTGAGGT	5981
1454	CUUCCAGA A CCUGCAAG	4994	CTTGCAGG GGCTAGCTACAACGA TCTGGAAG	5982
1458	CAGAACCU G CAAGUAAU	4995	ATTACTTG GGCTAGCTACAACGA AGGTTCTG	5983
1462	ACCUGCAA G UAAUCCGG	4996	CCGGATTA GGCTAGCTACAACGA TTGCAGGT	5984
1465	UGCAAGUA A UCCGGGGA	4997	TCCCCGGA GGCTAGCTACAACGA TACTTGCA	5985
1473	AUCCGGGG A CGAAUUCU	4998	AGAATTCG GGCTAGCTACAACGA CCCCGGAT	5986
1477	GGGGACGA A UUCUGCAC	4999	GTGCAGAA GGCTAGCTACAACGA TCGTCCCC	5987
1482	CGAAUUCU G CACAAUGG	5000	CCATTGTG GGCTAGCTACAACGA AGAATTCG	5988
1484	AAUUCUGC A CAAUGGCG	5001	CGCCATTG GGCTAGCTACAACGA GCAGAATT	5989
1487	UCUGCACA A UGGCGCCU	5002	AGGCGCCA GGCTAGCTACAACGA TGTGCAGA	5990
1490	GCACAAUG G CGCCUACU	5003	AGTAGGCG GGCTAGCTACAACGA CATTGTGC	5991
1492	ACAAUGGC G CCUACUCG	5004	CGAGTAGG GGCTAGCTACAACGA GCCATTGT	5992
1496	UGGCGCCU A CUCGCUGA	5005	TCAGCGAG GGCTAGCTACAACGA AGGCGCCA	5993
1500	GCCUACUC G CUGACCCU	5006	AGGGTCAG GGCTAGCTACAACGA GAGTAGGC	5994
1504	ACUCGCUG A CCCUGCAA	5007	TTGCAGGG GGCTAGCTACAACGA CAGCGAGT	5995
1509	CUGACCCU G CAAGGGCU	5008	AGCCCTTG GGCTAGCTACAACGA AGGGTCAG	5996
1515	CUGCAAGG G CUGGGCAU	5009	ATGCCCAG GGCTAGCTACAACGA CCTTGCAG	5997
1520	AGGGCUGG G CAUCAGCU	5010	AGCTGATG GGCTAGCTACAACGA CCAGCCCT	5998
1522	GGCUGGGC A UCAGCUGG	5011	CCAGCTGA GGCTAGCTACAACGA GCCCAGCC	5999
1526	GGGCAUCA G CUGGCUGG	5012	CCAGCCAG GGCTAGCTACAACGA TGATGCCC	6000
1530	AUCAGCUG G CUGGGGCU	5013	AGCCCCAG GGCTAGCTACAACGA CAGCTGAT	6001
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1541   GGGCUGC G CUCACUGA   5015   TCAGTGAG GCTAGCTACAACGA GCAGCCCC   6					
1545		CUGGGGCU G CGCUCACU	5015	AGTGAGCG GGCTAGCTACAACGA AGCCCCAG	6003
1554	541		5016		6004
1559   GGAACUGG G CAGUGGAC   5019   GTCCACTG GGCTAGCTACAACGA CCAGTTCC   6	.545		5017		6005
1562	.554		5018		6006
1566	.559		5019		6007
1570   GUGGACUG G CCCUCAUC   5022   GATGAGGG GGCTAGCTACAACGA CAGTCCAC   6	562	ACUGGGCA G UGGACUGG	5020		6008
1576	566	GGCAGUGG A CUGGCCCU	5021		6009
1580	1570	GUGGACUG G CCCUCAUC	5022	GATGAGGG GGCTAGCTACAACGA CAGTCCAC	6010
1583	1576	UGGCCCUC A UCCACCAU	5023	ATGGTGGA GGCTAGCTACAACGA GAGGGCCA	6011
1586	580	CCUCAUCC A CCAUAACA	5024	TGTTATGG GGCTAGCTACAACGA GGATGAGG	6012
1588	583	CAUCCACC A UAACACCC	5025	GGGTGTTA GGCTAGCTACAACGA GGTGGATG	6013
1592	1586	CCACCAUA A CACCCACC	5026	GGTGGGTG GGCTAGCTACAACGA TATGGTGG	6014
1598 CCACCUU G CUUGGUC 5029 GCACGAAG GGCTAGCTACAACGA AGAGGTGG 6 1603 UCUGCUUC G UGCACACG 5030 CGTGTGCA GGCTAGCTACAACGA AGAGCAGA 6 1605 UGCUUCGU G CACACGGU 5031 ACCGTGTG GGCTAGCTACAACGA AGAAGCA 6 1607 CUUCGUGC A CACGGUC 5032 GCACCGTG GGCTAGCTACAACGA ACGAAGCA 6 1609 UCGUGCAC A CGGUGCC 5033 GGCACCG GGCTAGCTACAACGA CGCACAGA 6 1612 UGCACACG G UGCCCUGG 5034 CCAGGGCA GGCTAGCTACAACGA CGTGCACGA 6 1612 UGCACACG G UGCCCUGG 5034 CCAGGGCA GGCTAGCTACAACGA CGTGCACGA 6 1614 CACACGGU G CCCUGGGA 5035 TCCCAGGG GGCTAGCTACAACGA CCGTGTGC 6 1622 GCCCUGGG A CCAGCUCU 5036 AGAGCTG GGCTAGCTACAACGA ACCGTTGTG 6 1626 UGGGACCA G CUCUUUCG 5037 CGAAAGAG GGCTAGCTACAACGA CCCAGGGC 6 1627 CUUUCGGA A CCCCCACC 5038 GGTGCGGG GGCTAGCTACAACGA TCCGAGAG 6 1637 CUUUCGGA A CCCCACC 5038 GGTGGGGG GGCTAGCTACAACGA TCCGAAAG 6 1641 CGGAACCC G CACCAAGC 5039 GCTTGGTG GGCTAGCTACAACGA TCCGAAAG 6 1642 GAACCCG C CACCAAGC 5039 GCTTGGTG GGCTAGCTACAACGA TCCGAAAG 6 1643 GAACCCGC A CCAAGCU 5040 GAGCTTGG GGCTAGCTACAACGA TCCGAAAG 6 1644 CGCACCAA G CUCUGCUC 5041 GAGCAGG GGCTAGCTACAACGA GCGGGTTC 6 1658 UCUGCUCC A CACUGCCA 5042 TGGTGGAG GGCTAGCTACAACGA GCGGGTTC 6 1658 UCUGCUCC A CACUGCCA 5043 TGGCAGG GGCTAGCTACAACGA GGAGCTTG 6 1659 UCUCCACA CUCUCCAC 5044 GTTGGAG GGCTAGCTACAACGA GGAGCAGA 6 1660 UGCUCCAC A CUGCCAC 5044 GTTGGCAG GGCTAGCTACAACGA GGAGCAGA 6 1661 UCCACACU G CCCACAC 5044 GTTGGCAG GGCTAGCTACAACGA GGAGCAGA 6 1662 UCCACACU G CCCACAC 5044 GTTGGCAG GGCTAGCTACAACGA GGAGCAGA 6 1663 UCCACACU G CCCACAC 5045 GCTGGCGG GGCTAGCTACAACGA GGAGCAGA 6 1660 UGCUCCAC A CUGCCAC 5045 GCTGGCGG GGCTAGCTACAACGA GGAGCAGA 6 1661 UCCACACU G CCAACCGG 5045 GCTGGCGG GGCTAGCTACAACGA GGAGCAGA 6 1662 UGCUCCAC A CUGCCAC 5045 GCTGGCGG GGCTAGCTACAACGA GGCTAGCTACAACGA CGGCTAGCACAC 6 1663 UCCACACU G CCAACCGG 5045 GCTGGCGG GGCTAGCTACAACGA CGGCTAGCACAC 6 1665 UCCACACC G CCAACGG 5045 GCTGGCGG GGCTAGCTACAACGA CCCCTCTGGC GCTAGCACAC GGCTAGCTACAACGA CCCCCCCCCC	L588	ACCAUAAC A CCCACCUC	5027	GAGGTGGG GGCTAGCTACAACGA GTTATGGT	6015
1603 UCUGCUUC G UGCACACG 5030 CGTGTGCA GGCTAGCTACAACGA GAAGCAGA 6 1605 UGCUUCGU G CACACGGU 5031 ACCGTGTG GGCTAGCTACAACGA ACGAAGCA 6 1607 CUUCGUGC A CACGGUGC 5032 GCACCGTG GGCTAGCTACAACGA ACGAAGA 6 1609 UCGUGCAC A CGGUGCC 5033 GGGCACCG GGCTAGCTACAACGA GCACGAAG 6 1612 UGCACACG G UGCCCUGG 5034 CCACGGCG GGCTAGCTACAACGA CGACGAAG 6 1614 CACACGGU G CCCUGGGA 5035 TCCCAGGG GGCTAGCTACAACGA CGGTGTGCA 6 1612 GCCCUGGG A CCAGCUCU 5036 AGAGCTGG GGCTAGCTACAACGA ACCGTGTG 6 1622 GCCCUGGG A CCAGCUCU 5036 AGAGCTGG GGCTAGCTACAACGA ACCGTGTG 6 1637 CUUUCGGA A CCCGCACC 5038 GGTGGCTAGCACACGA TGGTCCCA 6 1641 CGGAACCC G CACCAAGC 5038 GGTGGCTAGCTACAACGA TCGTACAACGA CCCAGGGC 6 1642 GGGACCA G CUCUUUCG 5037 CGAAAGAG GGCTAGCTACAACGA TCGTACAACGA CCCAGGGC 6 1643 CUUUCGGA A CCCGCACC 5038 GGTTGGTG GGCTAGCTACAACGA TCGAAAG 6 1644 CGGAACCC G CACCAAGC 5039 GCTTGGTG GGCTAGCTACAACGA GGGTTCCG 6 1645 GAACCCGC A CCAAGCU 5040 GAGCTTGG GGCTAGCTACAACGA GGGGTTC 6 1646 CGCACCAA G CUCUGCUC 5041 GAGCTGG GGCTAGCTACAACGA GCGGGTTC 6 1655 CAAGCUCU G CUCCACAC 5042 GTGTGGAG GGCTAGCTACAACGA TGGTGCCG 6 1656 UCUGCUCC A CACUGCCA 5042 GTGTGGAG GGCTAGCTACAACGA GAGGCTTG 6 1660 UGCUCCAC A CUGCCAAC 5042 GTGTGGAG GGCTAGCTACAACGA GAGGCTTG 6 1661 UCUCCAC A CUGCCAAC 5044 GTTGGCAG GGCTAGCTACAACGA GTGGAGCA 6 1662 UCCACACU G CCAACCCG 5044 GTTGGCAG GGCTAGCTACAACGA GTGGAGCA 6 1663 UCCACACCU G CCAACCCG 5046 GTTGGCAG GGCTAGCTACAACGA GTGGAGCA 6 1664 UCCACACU G CCAACCGG 5046 CTGGCCG GGCTAGCTACAACGA GTGGAGCA 6 1667 CACUGCCA A CCGGCCAG 5046 CTGGCCG GGCTAGCTACAACGA CTGTTGGC 6 1667 CACUGCCA CCGGCCAG 5046 CTGGCCG GGCTAGCTACAACGA CTGTTGGC 6 1667 CACUGCCA A CCGGCCAG 5048 CACACCG GGCTAGCTACAACGA CTGTTGGC 6 1667 CACUGCCA CCGGCCAG 5046 CTGGCCG GGCTAGCTACAACGA CTCTTGGC 6 1667 CACUGCCA A CCGGCCAG 5046 CTGGCCG GGCTAGCTACAACGA CTCTTGGC 6 1667 CACGCCCG CCCACACCG 5054 GCCCCACA GGCTAGCTACAACGA CCTCTCGC 6 1667 CACGCCCG CCCACACCG 5054 GCCCCCACA GGCTAGCTACAACGA CCTCTCGC 6 1667 CACGCCCG CCCCCC 5055 AGGCCCG GGCTAGCTACAACGA CCCCCCC 6 1667 ACGGCCGC CCCCCC 5055 AGGCCCG GGCTAGCTACAACGA CCCCCCC 6 1667 ACGCCCG CCCCCC	1592	UAACACCC A CCUCUGCU	5028	AGCAGAGG GGCTAGCTACAACGA GGGTGTTA	6016
1605	L598	CCACCUCU G CUUCGUGC	5029	GCACGAAG GGCTAGCTACAACGA AGAGGTGG	6017
1607	1603	UCUGCUUC G UGCACACG	5030	CGTGTGCA GGCTAGCTACAACGA GAAGCAGA	6018
1609 UCGUGCAC A CGGUGCCC 5033 GGGCACCG GGCTAGCTACAACGA GTGCACGA 6 1612 UGCACACG G UGCCCUGG 5034 CCAGGGCA GGCTAGCTACAACGA CGTGTGCA 6 1614 CACACGGU G CCCUGGGA 5035 TCCCAGGG GGCTAGCTACAACGA ACCGTGTG 6 1622 GCCCUGGG A CAGCUCU 5036 AGAGCTGG GGCTAGCTACAACGA ACCGTGTG 6 1626 UGGGACCA G CUCUUUCG 5037 CGAAAGAG GGCTAGCTACAACGA CCCAGGGC 6 1637 CUUUCGGA A CCCGCACC 5038 GGTGCGGG GGCTAGCTACAACGA TGGTCCCA 6 1641 CGGAACCC G CACCAAGC 5039 GCTTGGTG GGCTAGCTACAACGA TCCGAAAG 6 1641 CGGAACCC G CACCAAGC 5039 GCTTGGTG GGCTAGCTACAACGA TCCGAAAG 6 1643 GAACCCGC A CCAAGCUC 5040 GAGCTTGG GGCTAGCTACAACGA GGGGTTCC 6 1648 CGCACCAA G CUCUUCUC 5041 GAGCAGAG GGCTAGCTACAACGA TTGGTGCG 6 1653 CAAGCUCU G CUCCACCA 5042 GTGTGGAG GGCTAGCTACAACGA TTGGTGCG 6 1654 UCUGCUCC A CACUGCCA 5042 GTGTGGAG GGCTAGCTACAACGA GAGCCTTG 6 1660 UGCUCCAC A CUGCCAAC 5044 GTTGGCAG GGCTAGCTACAACGA GAGCCTTG 6 1660 UGCUCCAC A CUGCCAAC 5044 GTTGGCAG GGCTAGCTACAACGA GAGCAGA 6 1661 UCCACACU G CCAACCGG 5045 CCGGTTGG GGCTAGCTACAACGA GAGCAGA 6 1663 UCCACACU G CCAACCGG 5045 CCGGTTGG GGCTAGCTACAACGA GAGCAGA 6 1664 CACUGCCA A CCGGCCAG 5046 CTTGGCAG GGCTAGCTACAACGA AGTGTGGA 6 1667 CACUGCCA A CCGGCCAG 5046 CTTGGCCG GGCTAGCTACAACGA AGTGTGGA 6 1668 UCCACACU G CCAACCGG 5045 CCGGTTGG GGCTAGCTACAACGA AGTGTGGA 6 1669 CACUGCCA A CCGGCCAG 5046 CTTGGCCG GGCTAGCTACAACGA AGTGTGGA 6 1660 UGCUCCAC A CUGCCAAC 5044 GTTGGCAG GGCTAGCTACAACGA AGTGTGGA 6 1661 UCCACACU G CCAACCGG 5045 CCGCACCG GGCTAGCTACAACGA AGTGTGGA 6 1662 CACUGCCA A CCGGCCAG 5046 CTGGCCG GGCTAGCTACAACGA AGTGTGGA 6 1663 UCCACACU G CCAACCGG 5045 CCGCACAC GGCTAGCTACAACGA CTCTGGC 6 1664 CACUGCCA A CCGGCCAG 5046 CTGGCCG GGCTAGCTACAACGA ACTCGTC 6 1665 CACUGCCA A CCGGCCCA 5046 CTGGCCG GGCTAGCTACAACGA ACTCGTC 6 1666 CACGAGG G CCGGCCCC 5050 CGCCCACA GGCTAGCTACAACGA ACCTCGT 6 1667 CACUGCCA CGCCCCCC 5050 CGCCCACA GGCTAGCTACAACGA ACCTCGT 6 1668 GAGCGAGU G UGUGGGG 5050 CGCCCACA GGCTAGCTACAACGA ACCTCGT 6 1669 GGCCGGCG G CCGGCCC 5055 GGCCCCC GGCTAGCTACAACGA CCCCCCC 6 1669 GGCCGGC G CCGCCCC 5055 GGCCCCC GGCTAGCTACAACGA AGCCCCC 6 1700 GGCCUGCC A CCACCACC	1605	UGCUUCGU G CACACGGU	5031	ACCGTGTG GGCTAGCTACAACGA ACGAAGCA	6019
1612 UGCACACG G UGCCCUGG 5034 CCAGGGCA GGCTAGCTACAACGA CGTGTGCA 6 1614 CACACGGU G CCCUGGGA 5035 TCCCAGGG GGCTAGCTACAACGA ACCGTGTG 6 1622 GCCCUGGG A CCAGCUCU 5036 AGAGCTGG GGCTAGCTACAACGA ACCGTGTG 6 1626 UGGGACCA G CUCUUUCG 5037 CGAAAGAG GGCTAGCTACAACGA TGGTCCCA 6 1637 CUUUCGGA A CCCGCACC 5038 GGTGCGG GGCTAGCTACAACGA TGGTCCCA 6 1641 CGGAACCC G CACCAAGC 5038 GCTTGGTG GGCTAGCTACAACGA TCCGAAAG 6 1642 GGAACCC G CACCAAGC 5038 GCTTGGTG GGCTAGCTACAACGA TGGTCCCC 6 1643 GAACCCGC A CCAAGCU 5040 GAGCTTGG GGCTAGCTACAACGA GGGTTCC 6 1648 CGCACCAA G CUCUGCUC 5041 GAGCAGAG GGCTAGCTACAACGA GGGTTCC 6 1653 CAAGCUCU G CUCCACAC 5042 GTGTGGAG GGCTAGCTACAACGA TGGTGCC 6 1654 UCUGCUCC A CACUGCCA 5043 TGGCAGTG GGCTAGCTACAACGA AGAGCTTG 6 1656 UGCUCCAC A CUGCCAAC 5044 GTTGGCAG GGCTAGCTACAACGA GAGCTTG 6 1660 UGCUCCAC A CUGCCAAC 5044 GTTGGCAG GGCTAGCTACAACGA GGAGCAGA 6 1661 UCCACACU G CCAACCGG 5045 CCGGTTGG GGCTAGCTACAACGA AGTGTGGA 6 1662 UCCACACU G CCAACCGG 5045 CCGGTTGG GGCTAGCTACAACGA AGTGTAGA 6 1663 UCCACACU G CCAACCGG 5045 CCGGTTGG GGCTAGCTACAACGA AGTGTAGA 6 1667 CACUGCCA A CCGGCCAG 5046 CTGGCCGG GGCTAGCTACAACGA AGTGTAGA 6 1669 GCCAGACG G CCAGAGGA 5047 TCCTTCTGG GGCTAGCTACAACGA AGTGTAGA 6 1679 GCCAGACG C CCAACGG 5048 CACACTCG GGCTAGCTACAACGA CGGTTGGC 6 1683 GAGACGA G UGUGUGG 5048 CACACTCG GGCTAGCTACAACGA CCGTTGGC 6 1683 GAGACGAG G UGUGUGGG 5049 CCCACACA GGCTAGCTACAACGA ACTCTCC 6 1685 GGACGAGU G UGUGGGG 5050 CGCCCACA GGCTAGCTACAACGA ACTCTCC 6 1686 GGACGAGU G UGUGGGG 5050 CGCCCACA GGCTAGCTACAACGA ACTCTCC 6 1687 ACGACUGU G UGGGCGAG 5051 CTCCCCCA GGCTAGCTACAACGA ACCTCGTC 6 1688 GAGCCGG G CCUGCCAC 5054 GTGGCCAG GGCTAGCTACAACGA ACCTCGTC 6 1689 GGCCGCG G CCUGCCAC 5054 GTGGCCAG GGCTAGCTACAACGA CCCCCCC 6 1709 GGCCGCC G CCACCAGC 5055 GCCCCCCA GGCTAGCTACAACGA CCCCCCC 6 1709 GGCCGCC A CCAGCCGC 5055 GCCGCCACA GGCTAGCTACAACGA CCCCCCC 6 1709 GGCCGCC A CCACCAGC 5054 GTGGCCGC GGCTAGCTACAACGA AGGCCCCT 6 1709 GGCCGCC A CCACCAGC 5055 GCGCGCCAC GGCTAGCTACAACGA AGGCCCCT 6 1709 GGCCUGC A CCACCAGC 5056 CCGCCCCC GGCCACAG GGCTAGCTACAACGA AGGCCCCT 6 1709 GGCCGCC	1607	CUUCGUGC A CACGGUGC	5032	GCACCGTG GGCTAGCTACAACGA GCACGAAG	6020
1614 CACACGGU G CCCUGGGA  1622 GCCCUGGG A CCAGCUCU  1636 AGAGCTGG GGCTAGCTACAACGA ACCGTGTG  1626 UGGGACCA G CUCUUUCG  1637 CUUUCGGA A CCCGCACC  1638 GGTGCGGG GGCTAGCTACAACGA TCGTCCCA  1641 CGGAACCC G CACCAAGC  1641 CGGAACCC G CACCAAGC  1643 GAACCCGC A CCAAGCU  1643 GAACCCGC A CCAAGCU  1644 CGCACCA G CUCUUUCG  1645 CACCAAGC  1646 CGCACCA G CUCUCUC  1647 CACCACCC A CCAAGCU  1648 CGCACCA G CUCUCUC  1648 CGCACCA G CUCUCUC  1659 CAAGCUCU G CUCCACAC  1650 UGCCUCC A CACCAAGC  1660 UGCUCCAC A CACCGCAC  1660 UGCUCCAC A CUGCCCA  1660 UGCUCCAC A CUGCCCA  1661 UCCACACU G CCAACCGG  1662 CCACCAAGC  1663 UCCACACU G CCAACCGG  1663 UCCACACU G CCAACCGG  1664 CTGGCCGG GGCTAGCTACAACGA AGAGCTTG  1665 UCCCACAC  1667 CACUGCCA A CCGGCCAG  1667 CACUGCCA A CCGGCCAG  1667 CACUGCCA A CCGGCCAG  1667 CACUGCCA A CCGGCCAG  1668 GGCAGGG GGCTAGCTACAACGA AGGCTAGA  1669 CCACACCG G CCAGAGGA  1671 GCCAACCG G CCAGAGGA  1671 GCCAACCG G CCAGAGGA  1671 GCCAACCG G CCAGAGGA  1671 GCCAACCG CCAGAGGA  1671 GCCAACCG G CCAGAGGA  1671 GCCACCAG G CCAGAGGA  1671 GCCACCAG G CCAGAGGA  1671 CCCCGCCAGC GGCTAGCTACAACGA CCTCTGCC  1671 GCCACCAG G CCGCCC  1700 GGCCGAGG G CCCGCCC  1701 AGGCCAGG G CCCGCCC  1702 AGGCCAG G CCUGCCC  1703 AGGCCAG G CCCACCAGC  1704 GGCCACCA G CCACCAGC  1705 GGCCACCA G CCACCAGC  1706 CCUGCCC A CCACCAGC  1707 GGCCACCA G CCACCAGC  1708 GGCCACCA G CCACCAGC  1709 GGCCACCA G CCACCAGC  1709 GGCCACCA G CCACCAGC  1701 GCCACCA G CCACCAGC  1701 GCCACCA G CCACCAGC  1701 GCCACCA G CCACCAGC  1701 GCCACCA G CCACCAGC  1701	1609	UCGUGCAC A CGGUGCCC	5033	GGGCACCG GGCTAGCTACAACGA GTGCACGA	6021
1622         GCCCUGGG A CCAGCUCU         5036         AGAGCTGG GGCTAGCTACAACGA CCCAGGGC         6           1626         UGGGACCA G CUCUUUCG         5037         CGAAAGAG GGCTAGCTACAACGA TGGTCCCA         6           1637         CUUUCGGA A CCCGCACC         5038         GGTGCGGG GGCTAGCTACAACGA TCCGAAAG         6           1641         CGGAACCC G CACCAAGC         5039         GCTTGGTG GGCTAGCTACAACGA GGGTTCCG         6           1643         GAACCCGC A CCCACAGC         5040         GAGCTTGG GGCTAGCTACAACGA GGGGTTC         6           1648         CGCACCAA G CUCUGCUC         5041         GAGCAGAG GGCTAGCTACAACGA AGAGCTTG         6           1653         CAAGCUCU G CUCCACAC         5042         GTGTGGAG GGCTAGCTACAACGA AGAGCTTG         6           1658         UCUGCUCC A CACUGCCA         5043         TGGCAGTG GGCTAGCTACAACGA GGAGCAGA         6           1660         UGCUCCAC A CUGCCAA         5044         GTTGGCAG GGCTAGCTACAACGA AGTGGAGA         6           1663         UCCACACU G CCAACCGG         5045         CCGGTTGG GGCTAGCTACAACGA AGTGGAGA         6           1663         UCCACACA G CCAACCGG         5046         CTGGCCGG GGCTAGCTACAACGA AGTGTGGA         6           1671         GCCAACCG G CCAGAGGA         5047         TCCTCTGG GGCTAGCTACAACGA CCTCTGGC         6 <t< td=""><td>1612</td><td>UGCACACG G UGCCCUGG</td><td>5034</td><td>CCAGGGCA GGCTAGCTACAACGA CGTGTGCA</td><td>6022</td></t<>	1612	UGCACACG G UGCCCUGG	5034	CCAGGGCA GGCTAGCTACAACGA CGTGTGCA	6022
1626 UGGGACCA G CUCUUUCG 5037 CGAAAGAG GGCTAGCTACAACGA TGGTCCCA 6 1637 CUUUCGGA A CCCGCACC 5038 GGTGCGG GGCTAGCTACAACGA TCCGAAAG 6 1641 CGGAACCC G CACCAAGC 5039 GCTTGGTG GGCTAGCTACAACGA GGGTTCCG 6 1643 GAACCCGC A CCAAGCUC 5040 GAGCTTGG GGCTAGCTACAACGA GCGGTTCC 6 1648 CGCACCAA G CUCUGCUC 5041 GAGCAGAG GGCTAGCTACAACGA GCGGGTTC 6 1653 CAAGCUCU G CUCCACAC 5042 GTGTGGAG GGCTAGCTACAACGA AGACCTTG 6 1658 UCUGCUCC A CACUGCCA 5043 TGGCAGTG GGCTAGCTACAACGA GGAGCAGA 6 1660 UGCUCCAC A CUGCCAAC 5044 GTTGGCAG GGCTAGCTACAACGA GGAGCAGA 6 1663 UCCACACU G CCAACCCG 5045 CCGGTTAG GGCTAGCTACAACGA GTGGAGCA 6 1664 UGCUCCAC A CUGCCAAC 5046 GTTGGCAG GGCTAGCTACAACGA GTGGAGCA 6 1665 UCCACACU G CCAACCGG 5045 CCGGTTAG GGCTAGCTACAACGA AGTGTGGA 6 1667 CACUGCCA A CCGGCCAG 5046 CTGGCCGG GGCTAGCTACAACGA AGTGTGGA 6 1671 GCCAACCG CCAGAGGA 5047 TCCTCTGG GGCTAGCTACAACGA CGGTTGGC 6 1679 GCCAGAGG A CGAGUGUG 5048 CACACTCG GGCTAGCTACAACGA CGTTGGC 6 1683 GAGGACGA G UGUGUGGG 5049 CCCACACA GGCTAGCTACAACGA TCGTCCTC 6 1685 GGACGAGU G UGUGGGG 5050 CGCCCACA GGCTAGCTACAACGA ACCTCTGGC 6 1687 ACCAGUGU G UGUGGGG 5050 CGCCCACA GGCTAGCTACAACGA ACCTCTGCC 6 1687 ACCAGUGU G UGUGGGG 5050 CGCCCACA GGCTAGCTACAACGA ACCTCTGCC 6 1687 ACCAGUGU G UGUGGGG 5050 CGCCCACAC GGCTAGCTACAACGA ACCTCTGTC 6 1691 GUGUGUGG CCAGCACC 5052 GGCCCTCG GGCTAGCTACAACGA CCACCACC 6 1697 GGCCAGG G CCUGCCCU 5053 AGGCCAGG GGCTAGCTACAACGA CCACCACC 6 1697 GGCCAGCG CCUGCCCU 5053 AGGCCAGG GGCTAGCTACAACGA CCACCACC 6 1702 AGGGCCUG CCUGCCAC 5054 GTGGCAGG GGCTAGCTACAACGA CACCACCC 6 1704 GGCCUGCC CCCCCACC 5055 GCTGGTGG GGCTAGCTACAACGA CACCACCC 6 1706 CCUGGCCU G CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA CAGCCCC 6 1707 GGCCACCA GCUGCCCC 5055 GCTGGTGG GGCTAGCTACAACGA CAGCCCCC 6 1708 GGCCACCA GCUGCCCC 5055 GCTGGTGG GGCTAGCTACAACGA CAGCCCCC 6 1709 GGCCUGCC A CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGGC 6 1701 GCCACCAC GCCCACCCC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG CCCCCACACCCC GCCCCCCCCC	1614	CACACGGU G CCCUGGGA	5035	TCCCAGGG GGCTAGCTACAACGA ACCGTGTG	6023
1637 CUJUCGGA A CCCGCACC 5038 GGTGCGGG GGCTAGCTACAACGA TCCGAAAG 6 1641 CGGAACC G CACCAAGC 5039 GCTTGGTG GGCTAGCTACAACGA GGGTTCCG 6 1643 GAACCCGC A CCAAGCUC 5040 GAGCTTGG GGCTAGCTACAACGA GCGGGTTC 6 1648 CGCACCAA G CUCUGCUC 5041 GAGCAGAG GGCTAGCTACAACGA TTGGTGCG 6 1653 CAAGCUCU G CUCCACAC 5042 GTGTGGAG GGCTAGCTACAACGA AGACCTTG 6 1658 UCUGCUCC A CACUGCCA 5043 TGGCAGTG GGCTAGCTACAACGA GGAGCAGA 6 1660 UGCUCCAC A CUGCCAAC 5044 GTTGGCAG GGCTAGCTACAACGA GGAGCAGA 6 1663 UCCACACU G CCAACCGG 5045 CCGGTTGG GGCTAGCTACAACGA GTGGAGCA 6 1663 UCCACACU G CCAACCGG 5045 CCGGTTGG GGCTAGCTACAACGA AGTGTGGA 6 1667 CACUGCCA A CCGGCCAG 5046 CTGGCCGG GGCTAGCTACAACGA TGGCAGTG 6 1667 CACUGCCA A CCGGCCAG 5046 CTGGCCGG GGCTAGCTACAACGA TGGCAGTG 6 1667 GCCAACCG GCAGAGGA 5047 TCCTCTGG GGCTAGCTACAACGA CGGTTGGC 6 1669 GCCAGAGGA GUGUGUGGG 5048 CACACTCG GGCTAGCTACAACGA CGTTGGC 6 1669 GAGGAGGA GUGUGUGGG 5049 CCCACACA GGCTAGCTACAACGA TCGTCCTC 6 1665 GGACGAGU G UGUGGGG 5050 CGCCCACA GGCTAGCTACAACGA ACCTCTGC 6 1667 ACCAGUGU G UGUGGGG 5050 CGCCCACA GGCTAGCTACAACGA ACCTCTCT 6 1667 ACCAGUGU G UGUGGGG 5050 CGCCCACA GGCTAGCTACAACGA ACCTCGT 6 1667 ACCAGUGU G UGUGGGG 5051 CTCGCCCA GGCTAGCTACAACGA ACCTCGT 6 1667 ACCAGUGU G UGUGGGC 5051 CTCGCCCA GGCTAGCTACAACGA ACCTCGT 6 1667 ACCAGUGU G UGUGGGCC 5052 GGCCCTCG GGCTAGCTACAACGA CCACACAC 6 1667 ACCAGUGU G CCUGCCAC 5054 GTGGCCAC GGCTAGCTACAACGA CCACACAC 6 1667 ACCAGUGU G CCUGCCAC 5054 GTGGCAGG GGCTAGCTACAACGA CACACAC 6 1667 AGCGCCUG G CCUGCCCU 5053 AGGCCAGG GGCTAGCTACAACGA CACACAC 6 1667 AGCGCCUGC G CCUGCCCC 5054 GTGGCAGG GGCTAGCTACAACGA CACACAC 6 1667 AGCGCCCA GGCTAGCTACAACGA ACCTCGCC 6 1667 AGCGCCCA GGCTAGCTACAACGA CACACAC 6 1667 AGCGCCCA GGCTAGCTACAACGA CACACAC 6 1667 AGCGCCCA GGCTAGCTACAACGA CACACAC 6 1667 AGCGCCCA GGCCCCAC GGCCCCAC GGCCCCAC GGCCCCAC GGCCCCAC AGCCCCCCC 6 1667 AGCCCCAC GGCCCCAC GGCCCCAC GGCCCCCCCCCC	1622	GCCCUGGG A CCAGCUCU	5036	AGAGCTGG GGCTAGCTACAACGA CCCAGGGC	6024
1641 CGGAACCC G CACCAAGC 5039 GCTTGGTG GGCTAGCTACAACGA GGGTTCCG 6 1643 GAACCCGC A CCAAGCUC 5040 GAGCTTGG GGCTAGCTACAACGA GCGGGTTC 6 1648 CGCACCAA G CUCUGCUC 5041 GAGCAGAG GGCTAGCTACAACGA TTGGTGCG 6 1653 CAAGCUCU G CUCCACAC 5042 GTGTGGAG GGCTAGCTACAACGA AGAGCTTG 6 1658 UCUGCUCC A CACUGCCA 5043 TGGCAGTG GGCTAGCTACAACGA AGAGCTTG 6 1650 UGCUCCAC A CUGCCAAC 5044 GTTGGCAG GGCTAGCTACAACGA GGAGCAGA 6 1660 UGCUCCAC A CUGCCAAC 5044 GTTGGCAG GGCTAGCTACAACGA GTGGAGCA 6 1663 UCCACACU G CCAACCGG 5045 CCGGTTGG GGCTAGCTACAACGA GTGGAGCA 6 1667 CACUGCCA A CCGGCCAG 5046 CTGGCCGG GGCTAGCTACAACGA AGTGTGGA 6 1671 GCCAACCG G CCAGAGGA 5047 TCCTCTGG GGCTAGCTACAACGA TGGCAGTG 6 1679 GCCAGAGG A CGAGUGUG 5048 CACACTCG GGCTAGCTACAACGA CGTTGGC 6 1683 GAGGACGA G UGUGUGGG 5049 CCCACACA GGCTAGCTACAACGA CCTCTGGC 6 1685 GGACGAGU G UGUGGGCG 5050 CGCCCACA GGCTAGCTACAACGA ACCTCTC 6 1687 ACGAGUGU G UGGGCGG 5050 CGCCCACA GGCTAGCTACAACGA ACCTCGT C 1687 ACGAGUGU G UGGGCGAG 5051 CTCGCCCA GGCTAGCTACAACGA ACACTCGT 6 1691 GUGUGUGG C CAACGGC 5052 GGCCCTCC GGCTAGCTACAACGA CCACCACC 6 1697 GGGCGAGG C CUGGCCU 5053 AGGCCACG GGCTAGCTACAACGA CCACCACC 6 1702 AGGGCCUG C CCACCACC 5054 GTGGCAGCTACAACGA CCACCACC 6 1704 GGCCUGCC A CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGC 6 1705 GGCCUGCC A CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGC 6 1706 CCUGGCCU G CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG 6 1709 GGCCUGCC A CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG C 1709 GGCCUGCC A CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG C 1709 GGCCUGCC A CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG C 1709 GGCCUGCC A CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGC 6 1709 GGCCUGCC A CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGC 6 1709 GGCCUGCC A CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGC 6 1709 GGCCUGCC A CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGC 6 1701 GCCACCAG GCCACCAG GGCTAGCTACAACGA AGGCCAGC 6 1701 GCCACCAG GCCGGCG GGCTAGCTACAACGA AGGCCAGC 6 1701 GCCACCAG GCCGCG GGCTAGCTACAACGA AGGCCAGC 6 1701 GCCACCAG GCCAGCG GGCTAGCTACAACGA AGGCCAGC 6 1701 GCCACCAG GC	1626	UGGGACCA G CUCUUUCG	5037	CGAAAGAG GGCTAGCTACAACGA TGGTCCCA	6025
1643 GAACCCGC A CCAAGCUC 5040 GAGCTTGG GGCTAGCTACAACGA GCGGGTTC 6 1648 CGCACCAA G CUCUGCUC 5041 GAGCAGAG GGCTAGCTACAACGA TTGGTGCG 6 1653 CAAGCUCU G CUCCACAC 5042 GTGTGGAG GGCTAGCTACAACGA AGAGCTTG 6 1658 UCUGCUCC A CACUGCCA 5043 TGGCAGTG GGCTAGCTACAACGA AGAGCTTG 6 1659 UGCUCCAC A CUGCCAAC 5044 GTTGGCAG GGCTAGCTACAACGA GGAGCAGA 6 1660 UGCUCCAC A CUGCCAAC 5044 GTTGGCAG GGCTAGCTACAACGA GTGGAGCA 6 1663 UCCACACU G CCAACCGG 5045 CCGGTTGG GGCTAGCTACAACGA AGTGTGGA 6 1667 CACUGCCA A CCGGCCAG 5046 CTGGCCGG GGCTAGCTACAACGA AGTGTGGA 6 1671 GCCAACCG G CCAGAGGA 5047 TCCTCTGG GGCTAGCTACAACGA CGGTTGGC 6 1679 GCCAGAGG A CGAGUGUG 5048 CACACTCG GGCTAGCTACAACGA CGTTGGC 6 1683 GAGGACGA G UGUGUGGG 5049 CCCACACA GGCTAGCTACAACGA CCTCTGGC 6 1685 GGACGAGU G UGUGGGCG 5050 CGCCCACA GGCTAGCTACAACGA ACCTCGT 6 1687 ACGAGUGU G UGGGCGAG 5051 CTCGCCCA GGCTAGCTACAACGA ACACTCGT 6 1691 GUGUGUGG CGAGGGCC 5052 GGCCCCCA GGCTAGCTACAACGA CCACCACC 6 1697 GGGCGAGG CCUGGCCU 5053 AGGCCAGG GGCTAGCTACAACGA CCACCACC 6 1697 GGGCGAGG CCUGGCCU 5053 AGGCCAGG GGCTAGCTACAACGA CCACCACC 6 1702 AGGGCCUG CCACCAGC 5054 GTGGCAGG GGCTAGCTACAACGA CCACCACC 6 1703 GGCCUGCC CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG 6 1709 GGCCUGCC A CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG 6 1709 GGCCUGCC A CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG 6 1709 GGCCUGCC A CCACCAGC 5056 ACAGCTGG GGCTAGCTACAACGA AGGCCAGG 6 1709 GGCCUGCC A CCACCAGC 5056 ACAGCTGG GGCTAGCTACAACGA AGGCCAGG 6 1709 GGCCUGCC A CCACCAGC 5056 ACAGCTGG GGCTAGCTACAACGA AGGCCAGG 6 1709 GGCCUGCC A CCACCAGC 5057 GCGCACAG GGCTAGCTACAACGA AGGCCAGG 6 1709 GGCCUGCC A CCACCAGC 5056 ACAGCTGG GGCTAGCTACAACGA AGGCCAGG 6 1709 GGCCUGCC A CCACCAGC 5056 ACAGCTGG GGCTAGCTACAACGA AGGCCAGG 6 1700 GGCCUGCC A CCACCAGC 5057 GCGCACAG GGCTAGCTACAACGA AGGCCAGG 6 1700 GGCCUGCC A CCACCAGC 5056 ACAGCTGG GGCTAGCTACAACGA AGGCCAGG 6 1700 GGCCUGCC A CCACCAGC 5056 ACAGCTGG GGCTAGCTACAACGA AGCTGGTG 6 1700 GCCACAGC GCCCCG 5058 CGGCCACAG GGCTAGCTACAACGA AGCTGGTG 6 1700 GCCACAGCU GCCCCG 5058 CGGCCACAG GGCTAGCTACAACGA AGCTGGTG 6 1700 GCCACACAG GC	1637	CUUUCGGA A CCCGCACC	5038	GGTGCGGG GGCTAGCTACAACGA TCCGAAAG	6026
1648 CGCACCAA G CUCUGCUC 5041 GAGCAGAG GGCTAGCTACAACGA TTGGTGCG 6 1653 CAAGCUCU G CUCCACAC 5042 GTGTGGAG GGCTAGCTACAACGA AGACCTTG 6 1658 UCUGCUCC A CACUGCCA 5043 TGGCAGTG GGCTAGCTACAACGA GGAGCAGA 6 1660 UGCUCCAC A CUGCCAAC 5044 GTTGGCAG GGCTAGCTACAACGA GGAGCAGA 6 1663 UCCACACU G CCAACCGG 5045 CCGGTTGG GGCTAGCTACAACGA AGTGTGGA 6 1663 UCCACACU G CCAACCGG 5045 CCGGTTGG GGCTAGCTACAACGA AGTGTGGA 6 1667 CACUGCCA A CCGGCCAG 5046 CTGGCCGG GGCTAGCTACAACGA AGTGTGGA 6 1667 CACUGCCA A CCGGCCAG 5046 CTGGCCGG GGCTAGCTACAACGA TGGCAGTG 6 1671 GCCAACCG G CCAGAGGA 5047 TCCTCTGG GGCTAGCTACAACGA CGGTTGGC 6 1669 GCCAGAGG A CGAGUGUG 5048 CACACTCG GGCTAGCTACAACGA CCTCTGGC 6 1683 GAGGACGA G UGUGUGGG 5049 CCCACACA GGCTAGCTACAACGA CCTCTGGC 6 1685 GGACGAGU G UGUGGGCG 5050 CGCCCACA GGCTAGCTACAACGA ACTCGTC 6 1687 ACGAGUGU GUGGGCG 5050 CGCCCACA GGCTAGCTACAACGA ACACTCGT 6 1691 GUGUGUGG CGAGGGCC 5051 CTCGCCCA GGCTAGCTACAACGA ACACTCGT 6 1697 GGGCGAGG CCAGGCCC 5052 GGCCCTCG GGCTAGCTACAACGA CCACACAC 6 1697 GGGCCAGG GCUGCCCC 5053 AGGCCAGG GGCTAGCTACAACGA CCACACAC 6 1702 AGGGCCUG G CCUGCCAC 5054 GTGGCAGG GGCTAGCTACAACGA CCACCACC 6 1702 AGGGCCUG G CCUGCCAC 5054 GTGGCAGG GGCTAGCTACAACGA CAGCCCC 1706 GCCUGCCC CCUGCCCC GCCCAGCC GCCTAGCCTACAACGA AGGCCCCC 1709 GGCCUGCC A CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCCCC 1709 GGCCUGCC A CCACCAGC 5056 ACAGCTGG GGCTAGCTACAACGA AGGCCAGCC 1713 UGCCACCA G CUGUCCCC 5058 CCGGCCCA GGCTAGCTACAACGA AGGCCAGCC 1716 CACCAGCU G UGCGCCC 5058 CCGGCCCA GGCTAGCTACAACGA AGGCCAGCC 1716 CACCAGCU G UGCCCCC 5058 CCGGCCCA GGCTAGCTACAACGA AGGCCAGCC 1716 CACCAGCU G UGCCCCC 5058 CCGGCCCA GGCTAGCTACAACGA AGCCTGCCC 1716 CACCAGCU G UGCCCCC 5058 CCGGCCCA GGCTAGCTACAACGA AGCTAGCTACAACCA AGCCACCC 1716 CACCAGCU G UGCCCCC 5058 CCGGCCCA GGCTAGCTACAACCA AGCCTACCAC 1716 CACCAGCU G UGCCCCC 5058 CCGCCCA GGCTAGCTACAACCA AGCCTACCACCA CCCCCCC 1716 CCCCCCC 1716	1641	CGGAACCC G CACCAAGC	5039	GCTTGGTG GGCTAGCTACAACGA GGGTTCCG	6027
CAAGCUCU G CUCCACAC 5042 GTGTGGAG GGCTAGCTACAACGA AGAGCTTG 6  1658 UCUGCUCC A CACUGCCA 5043 TGGCAGTG GGCTAGCTACAACGA GGAGCAGA 6  1660 UGCUCCAC A CUGCCAAC 5044 GTTGGCAG GGCTAGCTACAACGA GTGGAGCA 6  1663 UCCACACU G CCAACCGG 5045 CCGGTTGG GGCTAGCTACAACGA AGTGTGGA 6  1667 CACUGCCA A CCGGCCAG 5046 CTGGCCGG GGCTAGCTACAACGA AGTGTGGA 6  1667 GCCAACCG G CCAGAGGA 5047 TCCTCTGG GGCTAGCTACAACGA TGGCAGTG 6  1679 GCCAGAGG A CGAGUGUG 5048 CACACTCG GGCTAGCTACAACGA CGGTTGGC 6  1683 GAGGACGA G UGUGUGGG 5049 CCCACACA GGCTAGCTACAACGA CCTCTGGC 6  1685 GGACGAGU G UGUGGGCG 5050 CGCCCACA GGCTAGCTACAACGA ACTCGTCC 6  1687 ACGAGUGU G UGGGCGG 5051 CTCGCCCA GGCTAGCTACAACGA ACACTCGT 6  1691 GUGUGUGG CGAGGGCC 5052 GGCCCTCG GGCTAGCTACAACGA CCACACAC 6  1697 GGGCGAGG CCUGGCCU 5053 AGGCCAGG GGCTAGCTACAACGA CCTCGCCC 6  1702 AGGGCCUG CCUGCCAC 5054 GTGGCAG GGCTAGCTACAACGA CACCCCCC 6  1706 CCUGGCCU G CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCCT 6  1709 GGCCUGCC A CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG 6  1713 UGCCACCA G CUGUGCGC 5057 GCGCACAG GGCTAGCTACAACGA TGGTGGCA 6  1716 CACCAGCU G UGCGCCC 5058 CCGGCCCA GGCTAGCTACAACGA TGGTGGCA 6  1716 CACCAGCU G UGCGCCC 5058 CCGGCCCA GGCTAGCTACAACGA TGGTGGCA 6  1716 CACCAGCU G UGCGCCC 5058 CCGGCCCA GGCTAGCTACAACGA TGGTGGCA 6  1716 CACCAGCU G UGCGCCCG 5058 CCGGCCCA GGCTAGCTACAACGA TGGTGGCA 6  1716 CACCAGCU G UGCGCCC 5058 CCGGCCCA GGCTAGCTACAACGA TGGTGGCA 6  1716 CACCAGCU G UGCGCCCG 5058 CCGGCCCA GGCTAGCTACAACGA TGGTGGCA 6  1716 CACCAGCU G UGCGCCCG 5058 CCGGCCCA GGCTAGCTACAACGA AGCTGGCCA 6  1716 CACCAGCU G UGCGCCCG 5058 CCGCCCA GGCTAGCTACAACCA AGCTGGCCA 6  1716 CACCAGCU G UGCGCCCG 5058 CCGCCCA GGCTAGCTACAACCA AGCTGGCCA 6  1717 CACCACCAGC GCCCACCAGC CCGCCACACACCA GGCCCACACACCA AGCTCAGCCACACACACACACACACACACACACACACACA	1643	GAACCCGC A CCAAGCUC	5040	GAGCTTGG GGCTAGCTACAACGA GCGGGTTC	6028
1658 UCUGCUCC A CACUGCCA  1660 UGCUCCAC A CUGCCAAC  1660 UGCUCCAC A CUGCCAAC  1663 UCCACACU G CCAACCGG  1667 CACUGCCA A CCGGCCAG  1667 CACUGCCA A CCGGCCAG  1667 CACUGCCA A CCGGCCAG  1667 GCCAACCG G CCAGAGGA  1668 GCTAGCTACAACGA AGTGTGGA  1671 GCCAACCG G CCAGAGGA  1669 GCCAGAGGA CACCTCG GGCTAGCTACAACGA CGGTTGGC  1679 GCCAGAGG A CGAGUGUG  1683 GAGGACGA G UGUGUGGG  1685 GGACGAGU G UGUGUGGG  1685 GGACGAGU G UGUGGGCG  1687 ACGAGUGU G UGGGCCAG  1691 GUGUGUGG G CGAGAGGA  1691 GUGUGUGG G CGAGAGGC  1697 GGGCGAGG G CCUGGCCU  1697 GGGCGAGG G CCUGGCCU  1697 GGGCCAGG G CCUGCCAC  1697 GGGCCAGG G CCUGCCAC  1697 GGGCCAGG G CCUGCCAC  1699 GGCCUGC C S052 GGCCCTCG GGCTAGCTACAACGA CCACCACC  1699 GGCCUGC G CCUGCCAC  1700 AGGGCCUG G CCUGCCAC  1700 GGCCAGCA GGCTAGCTACAACGA CCTCCGCC  1700 GGCCAGCA GCCTAGCTACAACGA CCACCACC  1700 GGCCAGCA G CCUGCCAC  1700 GGCCAGCA GGCTAGCTACAACGA CCACCACC  1700 GGCCAGCA GGCTAGCTACAACGA CCACCACC  1700 GGCCACA GGCTAGCTACAACGA CCACCACC  1700 GGCCACAC GCCCACCACC  1700 GGCCACCACC S054 GTGGCAGG GGCTAGCTACAACGA CAGGCCCT  1700 GGCCUGCC A CCACCAGC  1700 GGCCACCA GCCACCAGC  1700 GGCCACCA GCCACCAGC  1700 GGCCACCA GCCACCAGC  1700 GGCCACCAG GCCACCAGC  1700 GGCCACCA GCCACCAGC  1700 GGCCACCAG GCCACCAGC  1700 GGCCACCAG GCCACCAGC  1700 GGCCACCAG GCCACCAGCAGC  1700 GGCCACCAG GCCACCAGCAGC  1700 GGCCACCAG GCCACCAGCAGCAGCCACACACACACACA	1648	CGCACCAA G CUCUGCUC	5041	GAGCAGAG GGCTAGCTACAACGA TTGGTGCG	6029
1660 UGCUCCAC A CUGCCAAC  5044 GTTGGCAG GGCTAGCTACAACGA GTGGAGCA  1663 UCCACACU G CCAACCGG 5045 CCGGTTGG GGCTAGCTACAACGA AGTGTGGA  1667 CACUGCCA A CCGGCCAG 5046 CTGGCCGG GGCTAGCTACAACGA TGGCAGTG  1671 GCCAACCG G CCAGAGGA 5047 TCCTCTGG GGCTAGCTACAACGA CGGTTGGC 6  1679 GCCAGAGG A CGAGUGUG 5048 CACACTCG GGCTAGCTACAACGA CCTCTGGC 6  1683 GAGGACGA G UGUGUGGG 5049 CCCACACA GGCTAGCTACAACGA CCTCTGGC 6  1685 GGACGAGU G UGUGGGCG 5050 CGCCCACA GGCTAGCTACAACGA ACTCGTCC 6  1687 ACGAGUGU G UGGGCGAG 5051 CTCGCCCA GGCTAGCTACAACGA ACACTCGT 6  1691 GUGUGUGG G CGAGGGCC 5052 GGCCCTCG GGCTAGCTACAACGA CCACACAC 6  1697 GGGCGAGG G CCUGCCCU 5053 AGGCCAGG GGCTAGCTACAACGA CCTCGCCC 6  1702 AGGGCCUG G CCUGCCAC 5054 GTGGCAG GGCTAGCTACAACGA CACGCCCT 6  1706 CCUGGCCU G CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCCCT 6  1709 GGCCUGCC A CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG 6  1713 UGCCACCA G CUGUGCGC 5057 GCGCACAG GGCTAGCTACAACGA TGGTGGCA 6  1716 CACCAGCU G UGCGCCCG 5058 CGGGCCAA GGCTAGCTACAACGA TGGTGGCA 6  1716 CACCAGCU G UGCGCCCG 5058 CGGGCCAA GGCTAGCTACAACGA AGCTCGGTG 6  1716 CACCAGCU G UGCGCCC 5058 CGGGCCAA GGCTAGCTACAACGA AGCTCGGTG 6  1716 CACCAGCU G UGCGCCCG 5058 CGGGCCAA GGCTAGCTACAACGA AGCTCGGTG 6  1716 CACCAGCU G UGCGCCCG 5058 CGGGCCAA GGCTAGCTACAACGA AGCTCGGTG 6  1716 CACCAGCU G UGCGCCCG 5058 CGGGCCAA GGCTAGCTACAACGA AGCTCGGTG 6  1716 CACCAGCU G UGCGCCCG 5058 CGGGCCAA GGCTAGCTACAACGA AGCTCGGTG 6  1716 CACCAGCU G UGCGCCCG 5058 CGGGCCAA GGCTAGCTACAACGA AGCTCGGTG 6  1716 CACCAGCU G UGCGCCCG 5058 CGGGCCAA GGCTAGCTACAACGA AGCTCGGTG 6  1716 CACCAGCU G UGCGCCCG 5058 CGGGCCAA GGCTAGCTACAACGA AGCTCGGTG 6  1716 CACCAGCU G UGCGCCCG 5058 CGGGCCAA GGCTAGCTACAACGA AGCTCGGTG 6  1716 CACCAGCU G UGCGCCCG 5058 CGGGCCAA GGCTAGCTACAACGA AGCTCGGTG 6  1717 CACCACAGC GCCCACAGC 6  1718 CACCACAGC GCCCACACACACACAA ACCACACACACA	1653	CAAGCUCU G CUCCACAC	5042	GTGTGGAG GGCTAGCTACAACGA AGAGCTTG	6030
1663 UCCACACU G CCAACCGG 5045 CCGGTTGG GGCTAGCTACAACGA AGTGTGGA 6 1667 CACUGCCA A CCGGCCAG 5046 CTGGCCGG GGCTAGCTACAACGA TGGCAGTG 6 1671 GCCAACCG G CCAGAGGA 5047 TCCTCTGG GGCTAGCTACAACGA CGGTTGGC 6 1679 GCCAGAGG A CGAGUGUG 5048 CACACTCG GGCTAGCTACAACGA CGCTTGGC 6 1683 GAGGACGA G UGUGUGGG 5049 CCCACACA GGCTAGCTACAACGA TCGTCCTC 6 1685 GGACGAGU G UGUGUGGG 5050 CGCCCACA GGCTAGCTACAACGA ACTCGTCC 6 1687 ACGAGUGU G UGGGCGAG 5051 CTCGCCCA GGCTAGCTACAACGA ACACTCGT 6 1691 GUGUGUGG G CGAGGGCC 5052 GGCCCTCG GGCTAGCTACAACGA CCACACAC 6 1697 GGGCGAGG G CCUGGCCU 5053 AGGCCAGG GGCTAGCTACAACGA CCTCGCCC 6 1702 AGGGCCUG G CCUGCCAC 5054 GTGGCAGG GGCTAGCTACAACGA CAGGCCCT 6 1706 CCUGGCCU G CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG 6 1709 GGCCUGCC A CCAGCUGU 5056 ACAGCTGG GGCTAGCTACAACGA AGGCCAGG 6 1713 UGCCACCA G CUGUGCGC 5057 GCGCACAG GGCTAGCTACAACGA TGGTGGCA 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA TGGTGGCA 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA TGGTGGCA 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCC 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCC 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTGCA ACCACCACACCA	1658	UCUGCUCC A CACUGCCA	5043	TGGCAGTG GGCTAGCTACAACGA GGAGCAGA	6031
1667 CACUGCCA A CCGGCCAG 5046 CTGGCCGG GGCTAGCTACAACGA TGGCAGTG 1671 GCCAACCG G CCAGAGGA 5047 TCCTCTGG GGCTAGCTACAACGA CGGTTGGC 1679 GCCAGAGG A CGAGUGUG 5048 CACACTCG GGCTAGCTACAACGA CCTCTGGC 1683 GAGGACGA G UGUGUGGG 5049 CCCACACA GGCTAGCTACAACGA TCGTCCTC 1685 GGACGAGU G UGUGGGCG 5050 CGCCCACA GGCTAGCTACAACGA ACTCGTCC 1687 ACGAGUGU G UGGGCGAG 5051 CTCGCCCA GGCTAGCTACAACGA ACACTCGT 1691 GUGUGUGG G CGAGGGCC 5052 GGCCCTCG GGCTAGCTACAACGA CCACACAC 1697 GGGCGAGG G CCUGGCCU 5053 AGGCCAGG GGCTAGCTACAACGA CCTCGCCC 1702 AGGGCCUG G CCUGCCAC 5054 GTGGCAGG GGCTAGCTACAACGA CAGGCCCT 1706 CCUGGCCU G CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG 1709 GGCCUGCC A CCAGCUGU 5056 ACAGCTGG GGCTAGCTACAACGA GGCAGGCC 1713 UGCCACCA G CUGUGCGC 5057 GCGCACAG GGCTAGCTACAACGA TGGTGGCA 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG	1660	UGCUCCAC A CUGCCAAC	5044	GTTGGCAG GGCTAGCTACAACGA GTGGAGCA	6032
1671 GCCAACCG G CCAGAGGA 5047 TCCTCTGG GGCTAGCTACAACGA CGGTTGGC 6 1679 GCCAGAGG A CGAGUGUG 5048 CACACTCG GGCTAGCTACAACGA CCTCTGGC 6 1683 GAGGACGA G UGUGUGGG 5049 CCCACACA GGCTAGCTACAACGA TCGTCCTC 6 1685 GGACGAGU G UGUGGGCG 5050 CGCCCACA GGCTAGCTACAACGA ACTCGTCC 6 1687 ACGAGUGU G UGGGCGAG 5051 CTCGCCCA GGCTAGCTACAACGA ACACTCGT 6 1691 GUGUGUGG G CGAGGGCC 5052 GGCCCTCG GGCTAGCTACAACGA CCACACAC 6 1697 GGGCGAGG G CCUGGCCU 5053 AGGCCAGG GGCTAGCTACAACGA CCTCGCCC 6 1702 AGGGCCUG G CCUGCCAC 5054 GTGGCAGG GGCTAGCTACAACGA CAGGCCCT 6 1706 CCUGGCCU G CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG 1 1709 GGCCUGCC A CCACGCUGU 5056 ACAGCTGG GGCTAGCTACAACGA GGCCAGGC 1 1713 UGCCACCA G CUGUGCGC 5057 GCGCACAG GGCTAGCTACAACGA TGGTGGCA 1 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 1 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 1 1716 CACCAGCU G UGCGCCCG 5058 CGGGCCGCA GGCTAGCTACAACGA AGCTGGTG 1 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 1 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 1 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 1 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGCTG 1 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 1 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 1 1716 CACCAGCU G UGCGCCCG 5058 CGGGCCCA GCCTAGCTACAACGA AGCTGGTG 1 1716 CACCAGCU G UGCGCCCG 5058 CGGGCCCA GCCTAGCTACAACGA AGCTGCTACAACCA AGCTGCTACAACCAA AGCTACAACCAA AGCTGCTACAACCAA AGCTGCTACAACCAA AGCTGCTACAACCAA AGCTACAACCAA AGCTGCTACAACCAA AGCTACAACCAA AGCTACAACCAAA	1663	UCCACACU G CCAACCGG	5045		6033
1679 GCCAGAGG A CGAGUGUG 5048 CACACTCG GGCTAGCTACAACGA CCTCTGGC 6 1683 GAGGACGA G UGUGUGGG 5049 CCCACACA GGCTAGCTACAACGA TCGTCCTC 6 1685 GGACGAGU G UGUGGGCG 5050 CGCCCACA GGCTAGCTACAACGA ACTCGTCC 6 1687 ACGAGUGU G UGGGCGAG 5051 CTCGCCCA GGCTAGCTACAACGA ACACTCGT 6 1691 GUGUGUGG G CGAGGGCC 5052 GGCCCTCG GGCTAGCTACAACGA CCACACAC 6 1697 GGGCGAGG G CCUGGCCU 5053 AGGCCAGG GGCTAGCTACAACGA CCTCGCCC 6 1702 AGGGCCUG G CCUGCCAC 5054 GTGGCAGG GGCTAGCTACAACGA CAGGCCCT 6 1706 CCUGGCCU G CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG 1 1709 GGCCUGCC A CCACGCUGU 5056 ACAGCTGG GGCTAGCTACAACGA GGCAGGCC 6 1713 UGCCACCA G CUGUGCGC 5057 GCGCACAG GGCTAGCTACAACGA TGGTGGCA 1 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GCTAGCTACAACGA AGCTGGTG 6 1717 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GCTAGCTACAACGA AGCTGGTG 6 1718 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GCTAGCTACAACGA AGCTGGTG 6 1718 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GCTAGCTACAACGA AGCTGGTG 6 1718 CACCAGCU G UGCGCCCG 5058 CGGCCCACAG GCTAGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACCAACGA AGCTGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACGA AGCTGCTACAAC	1667	CACUGCCA A CCGGCCAG	5046	CTGGCCGG GGCTAGCTACAACGA TGGCAGTG	6034
1683 GAGGACGA G UGUGUGGG 5049 CCCACACA GGCTAGCTACAACGA TCGTCCTC 6 1685 GGACGAGU G UGUGGGCG 5050 CGCCCACA GGCTAGCTACAACGA ACTCGTCC 6 1687 ACGAGUGU G UGGGCGAG 5051 CTCGCCCA GGCTAGCTACAACGA ACACTCGT 6 1691 GUGUGUGG G CGAGGGCC 5052 GGCCTCG GGCTAGCTACAACGA CCACACAC 6 1697 GGGCGAGG G CCUGGCCU 5053 AGGCCAGG GGCTAGCTACAACGA CCTCGCCC 6 1702 AGGGCCUG G CCUGCCAC 5054 GTGGCAGG GGCTAGCTACAACGA CAGGCCCT 6 1706 CCUGGCCU G CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG 6 1709 GGCCUGCC A CCACGCUGU 5056 ACAGCTGG GGCTAGCTACAACGA AGGCCAGG 6 1713 UGCCACCA G CUGUGCGC 5057 GCGCACAG GGCTAGCTACAACGA TGGTGGCA 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1717 CACCAGCU G UGCGCCCG 5058 CGGCCCCACAG GGCTAGCTACAACGA AGCTGGTG 6 1717 CACCAGCU G UGCGCCCG 5058 CGGCCCACAG GGCTAGCTACAACGA AGCTGGTG 6 1717 CACCAGCU G UGCGCCCG 5058 CGGCCCACAG GGCTAGCTACAACGA AGCTGGTG 6 1718 CACCAGCU G UGCGCCCG 5058 CGGCCCACAG GGCTAGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACCACACCAC	1671	GCCAACCG G CCAGAGGA	5047	TCCTCTGG GGCTAGCTACAACGA CGGTTGGC	6035
1685 GGACGAGU G UGUGGGCG 5050 CGCCCACA GGCTAGCTACAACGA ACTCGTCC 6 1687 ACGAGUGU G UGGGCGAG 5051 CTCGCCCA GGCTAGCTACAACGA ACACTCGT 6 1691 GUGUGUGG G CGAGGGCC 5052 GGCCCTCG GGCTAGCTACAACGA CCACACAC 6 1697 GGGCGAGG G CCUGGCCU 5053 AGGCCAGG GGCTAGCTACAACGA CCTCGCCC 6 1702 AGGGCCUG G CCUGCCAC 5054 GTGGCAGG GGCTAGCTACAACGA CAGGCCCT 6 1706 CCUGGCCU G CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG 6 1709 GGCCUGCC A CCAGCUGU 5056 ACAGCTGG GGCTAGCTACAACGA AGGCCAGG 6 1713 UGCCACCA G CUGUGCGC 5057 GCGCACAG GGCTAGCTACAACGA TGGTGGCA 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1717 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG 6 1718 CACCAGCU G UGCGCCCG 5058 CGGCCGCA GGCTAGCTACAACGA AGCTGGTG 6 1718 CACCAGCU G UGCGCCCG 5058 CGGCCGCA GCCTAGCTACAACGA AGCTGGTG 6 1718 CACCAGCU G UGCGCCCG 5058 CGGCCCCACAG GCCTAGCTACAACGA AGCTGGTG 6 1717 CACCAGCU G UGCGCCCG 5058 CGGCCCCACAG GCCTAGCTACAACGA AGCTGGTG 6 1718 CACCAGCU G UGCGCCCG 5058 CGGCCCCACAG GCCTAGCTACAACGA AGCTGCTACAACGA AG	1679	GCCAGAGG A CGAGUGUG	5048	CACACTCG GGCTAGCTACAACGA CCTCTGGC	6036
1687 ACGAGUGU G UGGGCGAG 5051 CTCGCCCA GGCTAGCTACAACGA ACACTCGT (1691 GUGUGUGG G CGAGGGCC 5052 GGCCCTCG GGCTAGCTACAACGA CCACACAC (1697 GGGCGAGG G CCUGGCCU 5053 AGGCCAGG GGCTAGCTACAACGA CCTCGCCC (1702 AGGGCCUG G CCUGCCAC 5054 GTGGCAGG GGCTAGCTACAACGA CAGGCCCT (1706 CCUGGCCU G CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG (1709 GGCCUGCC A CCAGCUGU 5056 ACAGCTGG GGCTAGCTACAACGA AGGCCAGG (1713 UGCCACCA G CUGUGCGC 5057 GCGCACAG GGCTAGCTACAACGA TGGTGGCA (1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCG 5058 CGGCGCA GGCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCG 5058 CGGCGCA GGCTAGCTACAACGA AGCTGCTACAACGA AGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACGA AGCTACAACGA AGCTACAACAACAACAACAACAACAACAACAACAAACAACAA	1683	GAGGACGA G UGUGUGGG	5049	CCCACACA GGCTAGCTACAACGA TCGTCCTC	6037
1691 GUGUGUGG G CGAGGGCC 5052 GGCCCTCG GGCTAGCTACAACGA CCACACAC (1697) GGGCGAGG G CCUGGCCU 5053 AGGCCAGG GGCTAGCTACAACGA CCTCGCCC (1702) AGGGCCUG G CCUGCCAC 5054 GTGGCAGG GGCTAGCTACAACGA CAGGCCCT (1706) CCUGGCCU G CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG (1709) GGCCUGCC A CCAGCUGU 5056 ACAGCTGG GGCTAGCTACAACGA GGCAGGCC (1713) UGCCACCA G CUGUGCGC 5057 GCGCACAG GGCTAGCTACAACGA TGGTGGCA (1716) CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG (1716) CACCAGCU G UGCGCCCG (1716) CACCAGCU G UCCCGC (1716) CACCAGCU G UCCCCG (1716) CACCAGCU G UCCCG (1716) CACCAGCU G UCCCG	1685	GGACGAGU G UGUGGGCG	5050	CGCCCACA GGCTAGCTACAACGA ACTCGTCC	6038
1697 GGGCGAGG G CCUGGCCU 5053 AGGCCAGG GGCTAGCTACAACGA CCTCGCCC (1702 AGGCCUG G CCUGCCAC 5054 GTGGCAGG GGCTAGCTACAACGA CAGGCCCT (1706 CCUGGCCU G CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG (1709 GGCCUGCC A CCAGCUGU 5056 ACAGCTGG GGCTAGCTACAACGA GGCAGGCC (1713 UGCCACCA G CUGUGCGC 5057 GCGCACAG GGCTAGCTACAACGA TGGTGGCA (1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCG GCCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCG GCCTAGCTACACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCG GCCTAGCTACAACGA AGCTGCTACACGA AGCTGCTACACCACACGA AGCTGCTACACCACACACACACACACACACACACACACAC	1687	ACGAGUGU G UGGGCGAG	5051	CTCGCCCA GGCTAGCTACAACGA ACACTCGT	6039
1702 AGGGCCUG G CCUGCCAC 5054 GTGGCAGG GGCTAGCTACAACGA CAGGCCCT (1706 CCUGGCCU G CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG (1709 GGCCUGCC A CCAGCUGU 5056 ACAGCTGG GGCTAGCTACAACGA GGCAGGCC (1713 UGCCACCA G CUGUGCGC 5057 GCGCACAG GGCTAGCTACAACGA TGGTGGCA (1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCG GCTAGCTACAACGA AGCTGGTG GCTAGCTACAACGA AGCTGGTG GCTAGCTACAACGA AGCTGCTACAACGA AGCTGGTG GCTAGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACAACAACAACAACAACAACAACAACAACAACAAC	1691		5052	l	6040
1706 CCUGGCCU G CCACCAGC 5055 GCTGGTGG GGCTAGCTACAACGA AGGCCAGG (1709 GGCCUGCC A CCAGCUGU 5056 ACAGCTGG GGCTAGCTACAACGA GGCAGGCC (1713 UGCCACCA G CUGUGCGC 5057 GCGCACAG GGCTAGCTACAACGA TGGTGGCA (1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCG 5058 CGGCCACAG GGCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCG 5058 CGGCCACAG GGCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCG 5058 CGCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCG 5058 CGGCCACAG GGCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCG 5058 CGCTAGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACGA AGCTAGCTACAACGA AGCTGCTACAACGA AGCTGCTACAACGA AGCTAGCTACAACGA AGCTAGCTACAACGA AGCTAGCTACAACAACAACAACAACAACAACAACAACAACAACAAC	1697	GGGCGAGG G CCUGGCCU	5053		6041
1709 GGCCUGCC A CCAGCUGU 5056 ACAGCTGG GGCTAGCTACAACGA GGCAGGCC (1713 UGCCACCA G CUGUGCGC 5057 GCGCACAG GGCTAGCTACAACGA TGGTGGCA (1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCG GCGCACGA GGCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCG GCGCACGA GGCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCG GCCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCG GCCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCCG GCCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCCG GCCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCG GCCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCCG GCCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCCG GCCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCG GCCTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCCG GCCTAGCTACAACGA AGCTGGTAGCTACAACGA AGCTGGTG (1716 CACCAGCU G UGCGCCCCG GCCTAGCTACAACGA AGCTGGTAGCTACAACGA AGCTAGCTACAACGA AGCTAGCTACAACAACAACAACAACAACAACAACAACAACAACAAC	1702	AGGGCCUG G CCUGCCAC	5054	GTGGCAGG GGCTAGCTACAACGA CAGGCCCT	6042
1713 UGCCACCA G CUGUGCGC 5057 GCGCACAG GGCTAGCTACAACGA TGGTGGCA ( 1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG (	1706	CCUGGCCU G CCACCAGC	5055	GCTGGTGG GGCTAGCTACAACGA AGGCCAGG	6043
1716 CACCAGCU G UGCGCCCG 5058 CGGGCGCA GGCTAGCTACAACGA AGCTGGTG	1709		5056		6044
The second of th	1713		5057		6045
1718 CCAGCUGU G CGCCCGAG FORD CTCGGGCG GGCTAGCTACAACGA ACAGCTGG	1716		5058		6046
1 3032 1	1718	CCAGCUGU G CGCCCGAG	5059	CTCGGGCG GGCTAGCTACAACGA ACAGCTGG	6047
	1720		5060		6048
	1728		5061		6049
	1730	CCGAGGGC A CUGCUGGG	5062		6050
	1733	AGGGCACU G CUGGGGUC	5063		6051
	1739	···	5064		6052
			5065		6053
1750 CAGGGCCC A CCCAGUGU 5066 ACACTGGG GGCTAGCTACAACGA GGGCCCTG	1750	CAGGGCCC A CCCAGUGU	5066	ACACTGGG GGCTAGCTACAACGA GGGCCCTG	6054

1755 1757 1759 1763 1766 1769 1773 1784 1791 1793 1795 1803	CCCACCCA G UGUGUCAA  CACCCAGU G UGUCAACU  CCCAGUGU G UCAACUGC  GUGUGUCA A CUGCAGCC  UGUCAACU G CAGCCAGU  CAACUGCA G CCAGUUCC  UGCAGCCA G UUCCUUCG  CCUUCGGG G CCAGGAGU  GGCCAGGA G UGCGUGGA	5067 5068 5069 5070 5071 5072 5073	TTGACACA GGCTAGCTACAACGA TGGGTGGG AGTTGACA GGCTAGCTACAACGA ACTGGGTG GCAGTTGA GGCTAGCTACAACGA ACACTGGG GGCTGCAG GGCTAGCTACAACGA TGACACAC ACTGGCTG GGCTAGCTACAACGA AGTTGACA	6055 6056 6057 6058
1759 1763 1766 1769 1773 1784 1791 1793	CCCAGUGU G UCAACUGC GUGUGUCA A CUGCAGCC UGUCAACU G CAGCCAGU CAACUGCA G CCAGUUCC UGCAGCCA G UUCCUUCG CCUUCGGG G CCAGGAGU	5069 5070 5071 5072	GCAGTTGA GGCTAGCTACAACGA ACACTGGG GGCTGCAG GGCTAGCTACAACGA TGACACA ACTGGCTG GGCTAGCTACAACGA AGTTGACA	6057
1763 1766 1769 1773 1784 1791 1793	GUGUGUCA A CUGCAGCC UGUCAACU G CAGCCAGU CAACUGCA G CCAGUUCC UGCAGCCA G UUCCUUCG CCUUCGGG G CCAGGAGU	5070 5071 5072	GGCTGCAG GGCTAGCTACAACGA TGACACAC ACTGGCTG GGCTAGCTACAACGA AGTTGACA	
1766 1769 1773 1784 1791 1793	UGUCAACU G CAGCCAGU CAACUGCA G CCAGUUCC UGCAGCCA G UUCCUUCG CCUUCGGG G CCAGGAGU	5071 5072	ACTGGCTG GGCTAGCTACAACGA AGTTGACA	6058
1769 1773 1784 1791 1793 1795	CAACUGCA G CCAGUUCC UGCAGCCA G UUCCUUCG CCUUCGGG G CCAGGAGU	5072		
1773 1784 1791 1793 1795	UGCAGCCA G UUCCUUCG CCUUCGGG G CCAGGAGU	+		6059
1784 1791 1793 1795	CCUUCGGG G CCAGGAGU	5072	GGAACTGG GGCTAGCTACAACGA TGCAGTTG	6060
1791 1793 1795		1	CGAAGGAA GGCTAGCTACAACGA TGGCTGCA	6061
1793 1795	CCCCACCA C HCCCHCCA	5074	ACTCCTGG GGCTAGCTACAACGA CCCGAAGG	6062
1795		5075	TCCACGCA GGCTAGCTACAACGA TCCTGGCC	6063
	CCAGGAGU G CGUGGAGG	5076	CCTCCACG GGCTAGCTACAACGA ACTCCTGG	6064
1803	AGGAGUGC G UGGAGGAA	5077	TTCCTCCA GGCTAGCTACAACGA GCACTCCT	6065
<b></b>	GUGGAGGA A UGCCGAGU	5078	ACTCGGCA GGCTAGCTACAACGA TCCTCCAC	6066
1805	GGAGGAAU G CCGAGUAC	5079	GTACTCGG GGCTAGCTACAACGA ATTCCTCC	6067
1810	AAUGCCGA G UACUGCAG	5080	CTGCAGTA GGCTAGCTACAACGA TCGGCATT	6068
1812	UGCCGAGU A CUGCAGGG	5081	CCCTGCAG GGCTAGCTACAACGA ACTCGGCA	6069
1815	CGAGUACU G CAGGGGCU	5082	AGCCCCTG GGCTAGCTACAACGA AGTACTCG	6070
1821	CUGCAGGG G CUCCCCAG	5083	CTGGGGAG GGCTAGCTACAACGA CCCTGCAG	6071
1833	CCCAGGGA G UAUGUGAA	5084	TTCACATA GGCTAGCTACAACGA TCCCTGGG	6072
1835	CAGGGAGU A UGUGAAUG	5085	CATTCACA GGCTAGCTACAACGA ACTCCCTG	6073
1837	GGGAGUAU G UGAAUGCC	5086	GGCATTCA GGCTAGCTACAACGA ATACTCCC	6074
1841	GUAUGUGA A UGCCAGGC	5087	GCCTGGCA GGCTAGCTACAACGA TCACATAC	6075
1843	AUGUGAAU G CCAGGCAC	5088	GTGCCTGG GGCTAGCTACAACGA ATTCACAT	6076
1848	AAUGCCAG G CACUGUUU	5089	AAACAGTG GGCTAGCTACAACGA CTGGCATT	6077
1850	UGCCAGGC A CUGUUUGC	5090	GCAAACAG GGCTAGCTACAACGA GCCTGGCA	6078
1853	CAGGCACU G UUUGCCGU	5091	ACGGCAAA GGCTAGCTACAACGA AGTGCCTG	6079
1857	CACUGUUU G CCGUGCCA	5092	TGGCACGG GGCTAGCTACAACGA AAACAGTG	6080
1860	UGUUUGCC G UGCCACCC	5093	GGGTGGCA GGCTAGCTACAACGA GGCAAACA	6081
1862	UUUGCCGU G CCACCCUG	5094	CAGGGTGG GGCTAGCTACAACGA ACGGCAAA	6082
1865	GCCGUGCC A CCCUGAGU	5095	ACTCAGGG GGCTAGCTACAACGA GGCACGGC	6083
1872	CACCCUGA G UGUCAGCC	5096	GGCTGACA GGCTAGCTACAACGA TCAGGGTG	6084
1874	CCCUGAGU G UCAGCCCC	5097	GGGGCTGA GGCTAGCTACAACGA ACTCAGGG	6085
1878	GAGUGUCA G CCCCAGAA	5098	TTCTGGGG GGCTAGCTACAACGA TGACACTC	6086
1886	GCCCCAGA A UGGCUCAG	5099	CTGAGCCA GGCTAGCTACAACGA TCTGGGGC	6087
1889	CCAGAAUG G CUCAGUGA	5100	TCACTGAG GGCTAGCTACAACGA CATTCTGG	6088
1894	AUGGCUCA G UGACCUGU	5101	ACAGGTCA GGCTAGCTACAACGA TGAGCCAT	6089
1897	GCUCAGUG A CCUGUUUU	5102	AAAACAGG GGCTAGCTACAACGA CACTGAGC	6090
1901	AGUGACCU G UUUUGGAC	5103	GTCCAAAA GGCTAGCTACAACGA AGGTCACT	6091
1908	UGUUUUGG A CCGGAGGC	5104	GCCTCCGG GGCTAGCTACAACGA CCAAAACA	6092
1915	GACCGGAG G CUGACCAG	5105	CTGGTCAG GGCTAGCTACAACGA CTCCGGTC	6093
1919	GGAGGCUG A CCAGUGUG	5106	CACACTGG GGCTAGCTACAACGA CAGCCTCC	6094
1923	GCUGACCA G UGUGUGGC	5107	GCCACACA GGCTAGCTACAACGA TGGTCAGC	6095
1925	UGACCAGU G UGUGGCCU	5108	AGGCCACA GGCTAGCTACAACGA ACTGGTCA	6096
1927	ACCAGUGU G UGGCCUGU	5109	ACAGGCCA GGCTAGCTACAACGA ACACTGGT	6097
1930	AGUGUGUG G CCUGUGCC	5110	GGCACAGG GGCTAGCTACAACGA CACACACT	6098
1934	UGUGGCCU G UGCCCACU	5111	AGTGGGCA GGCTAGCTACAACGA AGGCCACA	6099
1936	UGGCCUGU G CCCACUAU	5112	ATAGTGGG GGCTAGCTACAACGA ACAGGCCA	6100
1940	CUGUGCCC A CUAUAAGG	5113	CCTTATAG GGCTAGCTACAACGA GGGCACAG	6101
1943	UGCCCACU A UAAGGACC	5114	GGTCCTTA GGCTAGCTACAACGA AGTGGGCA	6102
1949	CUAUAAGG A CCCUCCCU	5115	AGGGAGGG GGCTAGCTACAACGA CCTTATAG	6103
1961	UCCCUUCU G CGUGGCCC	5116	GGGCCACG GGCTAGCTACAACGA AGAAGGGA	6104
1963	CCUUCUGC G UGGCCCGC	5117	GCGGGCCA GGCTAGCTACAACGA GCAGAAGG	6105
1966	UCUGCGUG G CCCGCUGC	5118	GCAGCGGG GGCTAGCTACAACGA CACGCAGA	6106

1970	CGUGGCCC G CUGCCCCA	5119	TGGGGCAG GGCTAGCTACAACGA GGGCCACG	6107
1973	GGCCCGCU G CCCCAGCG	5120	CGCTGGGG GGCTAGCTACAACGA AGCGGGCC	6108
1979	CUGCCCA G CGGUGUGA	5121	TCACACCG GGCTAGCTACAACGA TGGGGCAG	6109
1982	CCCCAGCG G UGUGAAAC	5122	GTTTCACA GGCTAGCTACAACGA CGCTGGGG	6110
1984	CCAGCGGU G UGAAACCU	5123	AGGTTTCA GGCTAGCTACAACGA ACCGCTGG	6111
1989	GGUGUGAA A CCUGACCU	5124	AGGTCAGG GGCTAGCTACAACGA TTCACACC	6112
1994	GAAACCUG A CCUCUCCU	5125	AGGAGAGG GGCTAGCTACAACGA CAGGTTTC	6113
2003	CCUCUCCU A CAUGCCCA	5126	TGGGCATG GGCTAGCTACAACGA AGGAGAGG	6114
2005	UCUCCUAC A UGCCCAUC	5127	GATGGGCA GGCTAGCTACAACGA GTAGGAGA	6115
2007	UCCUACAU G CCCAUCUG	5128	CAGATGGG GGCTAGCTACAACGA ATGTAGGA	6116
2011	ACAUGCCC A UCUGGAAG	5129	CTTCCAGA GGCTAGCTACAACGA GGGCATGT	6117
2019	AUCUGGAA G UUUCCAGA	5130	TCTGGAAA GGCTAGCTACAACGA TTCCAGAT	6118
2027	GUUUCCAG A UGAGGAGG	5131	CCTCCTCA GGCTAGCTACAACGA CTGGAAAC	6119
2036	UGAGGAGG G CGCAUGCC	5132	GGCATGCG GGCTAGCTACAACGA CCTCCTCA	6120
2038	AGGAGGGC G CAUGCCAG	5133	CTGGCATG GGCTAGCTACAACGA GCCCTCCT	6121
2040	GAGGGCGC A UGCCAGCC	5134	GGCTGGCA GGCTAGCTACAACGA GCGCCCTC	6122
2042	GGCCCAU G CCAGCCUU	5135	AAGGCTGG GGCTAGCTACAACGA ATGCGCCC	6123
2046	GCAUGCCA G CCUUGCCC	5136	GGGCAAGG GGCTAGCTACAACGA TGGCATGC	6124
2051	CCAGCCUU G CCCCAUCA	5137	TGATGGGG GGCTAGCTACAACGA AAGGCTGG	6125
2056	CUUGCCCC A UCAACUGC	5138	GCAGTTGA GGCTAGCTACAACGA GGGGCAAG	6126
2060	CCCCAUCA A CUGCACCC	5139	GGGTGCAG GGCTAGCTACAACGA TGATGGGG	6127
2063	CAUCAACU G CACCCACU	5140	AGTGGGTG GGCTAGCTACAACGA AGTTGATG	6128
2065	UCAACUGC A CCCACUCC	5141	GGAGTGGG GGCTAGCTACAACGA GCAGTTGA	6129
2069	CUGCACCC A CUCCUGUG	5142	CACAGGAG GGCTAGCTACAACGA GGGTGCAG	6130
2075	CCACUCCU G UGUGGACC	5143	GGTCCACA GGCTAGCTACAACGA AGGAGTGG	6131
2077	ACUCCUGU G UGGACCUG	5144	CAGGTCCA GGCTAGCTACAACGA ACAGGAGT	6132
2081	CUGUGUGG A CCUGGAUG	5145	CATCCAGG GGCTAGCTACAACGA CCACACAG	6133
2087	GGACCUGG A UGACAAGG	5146	CCTTGTCA GGCTAGCTACAACGA CCAGGTCC	6134
2090	CCUGGAUG A CAAGGGCU	5147	AGCCCTTG GGCTAGCTACAACGA CATCCAGG	6135
2096	UGACAAGG G CUGCCCCG	5148	CGGGGCAG GGCTAGCTACAACGA CCTTGTCA	6136
2099	CAAGGGCU G CCCCGCCG	5149	CGGCGGG GGCTACCTACAACGA AGCCCTTG	6137
2104	GCUGCCCC G CCGAGCAG	5150	CTGCTCGG GGCTAGCTACAACGA GGGGCAGC	6138
2109	CCCGCCGA G CAGAGAGC	5151	GCTCTCTG GGCTAGCTACAACGA TCGGCGGG	6139
2116	AGCAGAGA G CCAGCCCU	5152	AGGGCTGG GGCTAGCTACAACGA TCTCTGCT	6140
2120	GAGAGCCA G CCCUCUGA	5153	TCAGAGGG GGCTAGCTACAACGA TGGCTCTC	6141
2128	GCCCUCUG A CGUCCAUC	5154	GATGGACG GGCTAGCTACAACGA CAGAGGGC	6142
2130	CCUCUGAC G UCCAUCAU	5155	ATGATGGA GGCTAGCTACAACGA GTCAGAGG	6143
2134	UGACGUCC A UCAUCUCU	5156	AGAGATGA GGCTAGCTACAACGA GGACGTCA	6144
2137	CGUCCAUC A UCUCUGCG	5157	CGCAGAGA GGCTAGCTACAACGA GATGGACG	6145
2143	UCAUCUCU G CGGUGGUU	5158	AACCACCG GGCTAGCTACAACGA AGAGATGA	6146
2146	UCUCUGCG G UGGUUGGC	5159	GCCAACCA GGCTAGCTACAACGA CGCAGAGA	6147
2149	CUGCGGUG G UUGGCAUU	5160	AATGCCAA GGCTAGCTACAACGA CACCGCAG	6148
2153	GGUGGUUG G CAUUCUGC	5161	GCAGAATG GGCTAGCTACAACGA CAACCACC	6149
2155	UGGUUGGC A UUCUGCUG	5162	CAGCAGAA GGCTAGCTACAACGA GCCAACCA	6150
2160	GGCAUUCU G CUGGUCGU	5163	ACGACCAG GGCTAGCTACAACGA AGAATGCC	6151
2164	UUCUGCUG G UCGUGGUC	5164	GACCACGA GGCTAGCTACAACGA CAGCAGAA	6152
2167	UGCUGGUC G UGGUCUUG	5165	CAAGACCA GGCTAGCTACAACGA GACCAGCA	6153
2170	UGGUCGUG G UCUUGGGG	5166	CCCCAAGA GGCTAGCTACAACGA CACGACCA	6154
2179	UCUUGGGG G UGGUCUUU	5167	AAAGACCA GGCTAGCTACAACGA CCCCAAGA	6155
2182	UGGGGGUG G UCUUUGGG	5168	CCCAAAGA GGCTAGCTACAACGA CACCCCCA	6156
2191	UCUUUGGG A UCCUCAUC	5169	GATGAGGA GGCTAGCTACAACGA CCCAAAGA	6157
2197	GGAUCCUC A UCAAGCGA	5170	TCGCTTGA GGCTAGCTACAACGA GAGGATCC	6158
		_ == / 0	<u> </u>	L 2230

[2202]	CHONION C. CONCOCON	r	######################################	
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2205	AUCAAGCG A CGGCAGCA	5172	TGCTGCCG GGCTAGCTACAACGA CGCTTGAT	6160
2208	AAGCGACG G CAGCAGAA	5173	TTCTGCTG GGCTAGCTACAACGA CGTCGCTT	6161
2211	CGACGGCA G CAGAAGAU	5174	ATCTTCTG GGCTAGCTACAACGA TGCCGTCG	6162
2218	AGCAGAAG A UCCGGAAG	5175	CTTCCGGA GGCTAGCTACAACGA CTTCTGCT	6163
2226	AUCCGGAA G UACACGAU	5176	ATCGTGTA GGCTAGCTACAACGA TTCCGGAT	6164
2228	CCGGAAGU A CACGAUGC	5177	GCATCGTG GGCTAGCTACAACGA ACTTCCGG	6165
2230	GGAAGUAC A CGAUGCGG	5178	CCGCATCG GGCTAGCTACAACGA GTACTTCC	6166
2233	AGUACACG A UGCGGAGA	5179	TCTCCGCA GGCTAGCTACAACGA CGTGTACT	6167
2235	UACACGAU G CGGAGACU	5180	AGTCTCCG GGCTAGCTACAACGA ATCGTGTA	6168
2241	AUGCGGAG A CUGCUGCA	5181	TGCAGCAG GGCTAGCTACAACGA CTCCGCAT	6169
2244	CGGAGACU G CUGCAGGA	5182	TCCTGCAG GGCTAGCTACAACGA AGTCTCCG	6170
2247	AGACUGCU G CAGGAAAC	5183	GTTTCCTG GGCTAGCTACAACGA AGCAGTCT	6171
2254	UGCAGGAA A CGGAGCUG	5184	CAGCTCCG GGCTAGCTACAACGA TTCCTGCA	6172
2259	GAAACGGA G CUGGUGGA	5185	TCCACCAG GGCTAGCTACAACGA TCCGTTTC	6173
2263	CGGAGCUG G UGGAGCCG	5186	CGGCTCCA GGCTAGCTACAACGA CAGCTCCG	6174
2268	CUGGUGGA G CCGCUGAC	5187	GTCAGCGG GGCTAGCTACAACGA TCCACCAG	6175
2271	GUGGAGCC G CUGACACC	5188	GGTGTCAG GGCTAGCTACAACGA GGCTCCAC	6176
2275	AGCCGCUG A CACCUAGC	5189	GCTAGGTG GGCTAGCTACAACGA CAGCGGCT	6177
2277	CCGCUGAC A CCUAGCGG	5190	CCGCTAGG GGCTAGCTACAACGA GTCAGCGG	6178
2282	GACACCUA G CGGAGCGA	5191	TCGCTCCG GGCTAGCTACAACGA TAGGTGTC	6179
2287	CUAGCGGA G CGAUGCCC	5192	GGGCATCG GGCTAGCTACAACGA TCCGCTAG	6180
2290	GCGGAGCG A UGCCCAAC	5193	GTTGGGCA GGCTAGCTACAACGA CGCTCCGC	6181
2292	GGAGCGAU G CCCAACCA	5194	TGGTTGGG GGCTAGCTACAACGA ATCGCTCC	6182
2297	GAUGCCCA A CCAGGCGC	5195	GCGCCTGG GGCTAGCTACAACGA TGGGCATC	6183
2302	CCAACCAG G CGCAGAUG	5196	CATCTGCG GGCTAGCTACAACGA CTGGTTGG	6184
2304	AACCAGGC G CAGAUGCG	5197	CGCATCTG GGCTAGCTACAACGA GCCTGGTT	6185
2308	AGGCGCAG A UGCGGAUC	5198	GATCCGCA GGCTAGCTACAACGA CTGCGCCT	6186
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2331	GAGACGGA G CUGAGGAA	5202	TTCCTCAG GGCTAGCTACAACGA TCCGTCTC	6190
2341	UGAGGAAG G UGAAGGUG	5203	CACCTTCA GGCTAGCTACAACGA CTTCCTCA	6191
2347	AGGUGAAG G UGCUUGGA	5204	TCCAAGCA GGCTAGCTACAACGA CTTCACCT	6192
2349	GUGAAGGU G CUUGGAUC	5205	GATCCAAG GGCTAGCTACAACGA ACCTTCAC	6193
2355	GUGCUUGG A UCUGGCGC	5206	GCGCCAGA GGCTAGCTACAACGA CCAAGCAC	6194
2360	UGGAUCUG G CGCUUUUG	5207	CAAAAGCG GGCTAGCTACAACGA CAGATCCA	6195
2362	GAUCUGGC G CUUUUGGC	5208	GCCAAAAG GGCTAGCTACAACGA GCCAGATC	6196
2369	CGCUUUUG G CACAGUCU	5209	AGACTGTG GGCTAGCTACAACGA CAAAAGCG	6197
2371	CUUUUGGC A CAGUCUAC	5210	GTAGACTG GGCTAGCTACAACGA GCCAAAAG	6198
2374	UUGGCACA G UCUACAAG	5211	CTTGTAGA GGCTAGCTACAACGA TGTGCCAA	6199
2378	CACAGUCU A CAAGGGCA	5212	TGCCCTTG GGCTAGCTACAACGA AGACTGTG	6200
2384	CUACAAGG G CAUCUGGA	5213	TCCAGATG GGCTAGCTACAACGA CCTTGTAG	6201
2386	ACAAGGGC A UCUGGAUC	5214	GATCCAGA GGCTAGCTACAACGA GCCCTTGT	6202
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2399	GAUCCCUG A UGGGGAGA	5216	TCTCCCCA GGCTAGCTACAACGA CAGGGATC	6204
2408	UGGGGAGA A UGUGAAAA	5217	TTTTCACA GGCTAGCTACAACGA TCTCCCCA	6205
2410	GGGAGAAU G UGAAAAUU	5218	AATTTCA GGCTAGCTACAACGA ATTCTCCC	6206
2416	AUGUGAAA A UUCCAGUG	5219	CACTGGAA GGCTAGCTACAACGA TTTCACAT	6207
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	CAGUGGCC A UCAAAGUG			

			CCTCAACA GGCTAGCTACAACGA TTTGATGG	6211
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2436	AUCAAAGU G UUGAGGGA	5224	GGGATGTG GGCTAGCTACAACGA TTTCCCTC	
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2451	GAAAACAC A UCCCCCAA	5227	TTTGTTGG GGCTAGCTACAACGA TTTGGGGG	6215
2461	CCCCCAAA G CCAACAAA	5228		6216
2465	CAAAGCCA A CAAAGAAA	5229	TTTCTTTG GGCTAGCTACAACGA TGGCTTTG	6217
2473	ACAAAGAA A UCUUAGAC	5230	GTCTAAGA GGCTAGCTACAACGA TTCTTTGT	6218
2480	AAUCUUAG A CGAAGCAU	5231	ATGCTTCG GGCTAGCTACAACGA CTAAGATT	6219
2485	UAGACGAA G CAUACGUG	5232	CACGTATG GGCTAGCTACAACGA TTCGTCTA	6220
2487	GACGAAGC A UACGUGAU	5233	ATCACGTA GGCTAGCTACAACGA GCTTCGTC	6221
2489	CGAAGCAU A CGUGAUGG	5234	CCATCACG GGCTAGCTACAACGA ATGCTTCG	6222
2491	AAGCAUAC G UGAUGGCU	5235	AGCCATCA GGCTAGCTACAACGA GTATGCTT	6223
2494	CAUACGUG A UGGCUGGU	5236	ACCAGCCA GGCTAGCTACAACGA CACGTATG	6224
2497	ACGUGAUG G CUGGUGUG	5237	CACACCAG GGCTAGCTACAACGA CATCACGT	6225
2501	GAUGGCUG G UGUGGGCU	5238	AGCCCACA GGCTAGCTACAACGA CAGCCATC	6226
2503	UGGCUGGU G UGGGCUCC	5239	GGAGCCCA GGCTAGCTACAACGA ACCAGCCA	6227
2507	UGGUGUGG G CUCCCCAU	5240	ATGGGGAG GGCTAGCTACAACGA CCACACCA	6228
2514	GGCUCCCC A UAUGUCUC	5241	GAGACATA GGCTAGCTACAACGA GGGGAGCC	6229
2516	CUCCCCAU A UGUCUCCC	5242	GGGAGACA GGCTAGCTACAACGA ATGGGGAG	6230
2518	CCCCAUAU G UCUCCCGC	5243	GCGGGAGA GGCTAGCTACAACGA ATATGGGG	6231
2525	UGUCUCCC G CCUUCUGG	5244	CCAGAAGG GGCTAGCTACAACGA GGGAGACA	6232
2534	CCUUCUGG G CAUCUGCC	5245	GGCAGATG GGCTAGCTACAACGA CCAGAAGG	6233
2536	UUCUGGGC A UCUGCCUG	5246	CAGGCAGA GGCTAGCTACAACGA GCCCAGAA	6234
2540	GGGCAUCU G CCUGACAU	5247	ATGTCAGG GGCTAGCTACAACGA AGATGCCC	6235
2545	UCUGCCUG A CAUCCACG	5248	CGTGGATG GGCTAGCTACAACGA CAGGCAGA	6236
2547	UGCCUGAC A UCCACGGU	5249	ACCGTGGA GGCTAGCTACAACGA GTCAGGCA	6237
2551	UGACAUCC A CGGUGCAG	5250	CTGCACCG GGCTAGCTACAACGA GGATGTCA	6238
2554	CAUCCACG G UGCAGCUG	5251	CAGCTGCA GGCTAGCTACAACGA CGTGGATG	6239
2556	UCCACGGU G CAGCUGGU	5252	ACCAGCTG GGCTAGCTACAACGA ACCGTGGA	6240
2559	ACGGUGCA G CUGGUGAC	5253	GTCACCAG GGCTAGCTACAACGA TGCACCGT	6241
2563	UGCAGCUG G UGACACAG	5254	CTGTGTCA GGCTAGCTACAACGA CAGCTGCA	6242
2566	AGCUGGUG A CACAGCUU	5255	AAGCTGTG GGCTAGCTACAACGA CACCAGCT	6243
2568	CUGGUGAC A CAGCUUAU	5256	ATAAGCTG GGCTAGCTACAACGA GTCACCAG	6244
2571	GUGACACA G CUUAUGCC	5257	GGCATAAG GGCTAGCTACAACGA TGTGTCAC	6245
2575	CACAGCUU A UGCCCUAU	5258	ATAGGGCA GGCTAGCTACAACGA AAGCTGTG	6246
2577	CAGCUUAU G CCCUAUGG	5259	CCATAGGG GGCTAGCTACAACGA ATAAGCTG	6247
2582		5260	GGCAGCCA GGCTAGCTACAACGA AGGGCATA	6248
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2612	<u> </u>	5266	GTCCGCGG GGCTAGCTACAACGA TTTCCCGG	6254
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2619		5268	CCCAGGCG GGCTAGCTACAACGA CCGCGGTT	6256
2621	<u></u>	<del></del>	AGCCCAGG GGCTAGCTACAACGA GTCCGCGG	6257
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2640		5271	CAGTTCAG GGCTAGCTACAACGA AGGTCCTG	6260
2645		5272	TACACCAG GGCTAGCTACAACGA TCAGCAGG	6261
2649		5273	TGCATACA GGCTAGCTACAACGA CAGTTCAG	6262
2043	COGAACOG G DGOAOGCA	5274		

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2653	ACUGGUGU A UGCAGAUU	5276	AATCTGCA GGCTAGCTACAACGA ACACCAGT	6264
2655	UGGUGUAU G CAGAUUGC	5277	GCAATCTG GGCTAGCTACAACGA ATACACCA	6265
2659	GUAUGCAG A UUGCCAAG	5278	CTTGGCAA GGCTAGCTACAACGA CTGCATAC	6266
2662	UGCAGAUU G CCAAGGGG	5279	CCCCTTGG GGCTAGCTACAACGA AATCTGCA	6267
2671	CCAAGGGG A UGAGCUAC	5280	GTAGCTCA GGCTAGCTACAACGA CCCCTTGG	6268
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2678	GAUGAGCU A CCUGGAGG	5282	CCTCCAGG GGCTAGCTACAACGA AGCTCATC	6270
2687	CCUGGAGG A UGUGCGGC	5283	GCCGCACA GGCTAGCTACAACGA CCTCCAGG	6271
2689	UGGAGGAU G UGCGGCUC	5284	GAGCCGCA GGCTAGCTACAACGA ATCCTCCA	6272
2691	GAGGAUGU G CGGCUCGU	5285	ACGAGCCG GGCTAGCTACAACGA ACATCCTC	6273
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2708	ACACAGGG A CUUGGCCG	5290	CGGCCAAG GGCTAGCTACAACGA CCCTGTGT	6278
2713	GGGACUUG G CCGCUCGG	5291	CCGAGCGG GGCTAGCTACAACGA CAAGTCCC	6279
2716	ACUUGGCC G CUCGGAAC	5292	GTTCCGAG GGCTAGCTACAACGA GGCCAAGT	6280
2723	CGCUCGGA A CGUGCUGG	5293	CCAGCACG GGCTAGCTACAACGA TCCGAGCG	6281
2725	CUCGGAAC G UGCUGGUC	5294	GACCAGCA GGCTAGCTACAACGA GTTCCGAG	6282
2727	CGGAACGU G CUGGUCAA	5295	TTGACCAG GGCTAGCTACAACGA ACGTTCCG	6283
2731	ACGUGCUG G UCAAGAGU	5296	ACTCTTGA GGCTAGCTACAACGA CAGCACGT	6284
2738	GGUCAAGA G UCCCAACC	5297	GGTTGGGA GGCTAGCTACAACGA TCTTGACC	6285
2744	GAGUCCCA A CCAUGUCA	5298	TGACATGG GGCTAGCTACAACGA TGGGACTC	6286
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2755	AUGUCAAA A UUACAGAC	5301	GTCTGTAA GGCTAGCTACAACGA TTTGACAT	6289
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2773	UCGGGCUG G CUCGGCUG	5305	CAGCCGAG GGCTAGCTACAACGA CAGCCCGA	6293
2778	CUGGCUCG G CUGCUGGA	5306	TCCAGCAG GGCTAGCTACAACGA CGAGCCAG	6294
2781	GCUCGGCU G CUGGACAU	5307	ATGTCCAG GGCTAGCTACAACGA AGCCGAGC	6295
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2797	UUGACGAG A CAGAGUAC	5311	GTACTCTG GGCTAGCTACAACGA CTCGTCAA	6299
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2807	AGAGUACC A UGCAGAUG	5314	CATCTGCA GGCTAGCTACAACGA GGTACTCT	6302
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2813	CCAUGCAG A UGGGGGCA	5316	TGCCCCCA GGCTAGCTACAACGA CTGCATGG	6304
2819	AGAUGGGG G CAAGGUGC	5317	GCACCTTG GGCTAGCTACAACGA CCCCATCT	6305
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2835	CCCAUCAA G UGGAUGGC	5321	GCCATCCA GGCTAGCTACAACGA TTGATGGG	6309
2839	UCAAGUGG A UGGCGCUG	5322	CAGCGCCA GGCTAGCTACAACGA CCACTTGA	6310
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2844	UGGAUGGC G CUGGAGUC	5324	GACTCCAG GGCTAGCTACAACGA GCCATCCA	6312
2850	GCGCUGGA G UCCAUUCU	5325	AGAATGGA GGCTAGCTACAACGA TCCAGCGC	6313
2854	UGGAGUCC A UUCUCCGC	5326	GCGGAGAA GGCTAGCTACAACGA GGACTCCA	6314

2861 CUCGGCCG G CGGUCAC 5328 P3287 ACCGCCGG GGCTAGCTACACAGA GGGAATG 6316 2866 CUCGGCCG G UUCACCCA 5329 TGGGTGAA GGCTAGCTACACAGA COGCGGGC 6316 2872 GGGGGGCA CCCCCCA 5329 TGGGTGAA GGCTAGCTACACAGA GGCCGGCG 6318 2872 GGGGGGUCA CCCCACAG 5330 CTGGTGAG GGCTAGCTACACAGA GGCCGGCG 6318 2872 GGCGGCCC A CCACAGA GGCTAGCTACACAGA GGCCGCCCA 6318 2872 GGCGGCCCA CCCACAGA GGCTAGCTACACAGA GGCCGCCCA CCCACAGA GGCTAGCTACACAGA GGCCAGACAGA CACCCCCAGA CGCCACAGA GGCTAGCTACACAGA GGCCAGACAGA CACCCCCAGA CGCCAGA GUGAGGGCCA CCCCAGA GGCTAGCTACACAGA CACCCAGA GGCTAGCTACACAGA CACCCAGA GGCTAGCTACACAGA CACCCAGA GGCTAGCTACACAGA CACCCACA GGCTAGCTACACACA CACCCACAC GGCTAGCTACACACA CACCCACA GGCTAGCTACACACA CACCCACA GGCTAGCTACACACA CACCCACA GGCTAGCTACACACA CACCCAC GGCTAGCTACACACA CACCCAC GGCTAGCTACACACA CACCCACA GGCTAGCTACACACA C					
2868	2861	CAUUCUCC G CCGGCGGU	5327	ACCGCCGG GGCTAGCTACAACGA GGAGAATG	6315
8972 GGGGGUUC À CCCACCAG 5320 87876 GUUCACCC À CCAGAGGU 5331 CACTOTICS GGCTAGCTACAACGA GAACCGC 6318 87882 CCACCAGA G UGAUGUGU 5331 CACTOTICS GGCTAGCTACAACGA GGGTGACCACGA 6319 87885 CCCACGAGA G UGAUGUGU 5332 ACACATCA GGCTAGCTACAACGA CGTCTGG 6319 87885 CCAGAGUG À UGUGUGGA 5333 TCCACACA GGCTAGCTACAACGA ACACTCTGG 6319 8885 CCAGAGUGU À UGUGUGGA 5333 TCCACACA GGCTAGCTACAACGA ACACTCTGG 6312 8897 AGUGUGU G UGGAGGUU 5334 ACTCCACA GGCTAGCTACAACGA ACACTCACT 6322 8898 AGUGUGU G UGGAGGUU 53336 CACCATAA GGCTAGCTACAACGA ACACTCAC 6322 8899 AGUGUGGA G UUAUGUGU 5336 CACCATAA GGCTAGCTACAACGA ACACTCAC 6322 8990 GGAGUUU G UGGAGGUU 5333 TAACTCCA GGCTAGCTACAACGA ACACTCAC 6322 8990 GGAUGUU G UGUGACU 5338 CAGTCACA GGCTAGCTACAACGA ACACTCAC 6322 8900 GAGUUAUGU G UGUGACU 5338 CAGTCACA GGCTAGCTACAACGA ACACTCAC 6322 8900 GUULAUGU G UGUGACU 5339 CACACTCA GGCTAGCTACAACGA ACACTCAC 6327 8900 GUULAUGU G UGUGAGGU 5340 CCACACA GGCTAGCTACAACGA ACACTCAC 6327 8900 GUULAUGU G UGUGAGG 5340 CCACACA GGCTAGCTACAACGA ACACTCAC 6327 8900 GUULAUGU G UGUGAGG 5341 CTCCCACA GGCTAGCTACAACGA ACACTCAC 6327 8910 GUGACUU G UGUGGAG 5341 CTCCCACA GGCTAGCTACAACGA ACACTCAC 6329 8910 GUGACUU G UGUGAGG 5341 CTCCCACA GGCTAGCTACAACGA ACACTCAC 6329 8910 GUGACUU G UGUGGAG 5341 CTCCCACA GGCTAGCTACAACGA ACACTCAC 6329 8910 GUGACUU G UGUGGAG 5341 CTCCCACA GGCTAGCTACAACGA ACACTCAC 6329 8910 GUGACUU G UGUGGAG 5341 CTCCCACA GGCTAGCTACAACGA ACACTCAC 6329 8910 GUGACUU G UGUGGAG 5341 CTCCCACA GGCTAGCTACAACGA ACACTCAC 6329 8910 GUGACUU G UGUGGAG 5345 CCCAAAAG GGCTAGCTACAACGA ACACTCCC 6332 8921 CUUUUGGG 5345 CCCACAAG GGCTAGCTACAACGA ACACTCCC 6332 8922 CUUUUGGG 5345 CCCACAAG GGCTAGCTACAACGA CAGACCC 6332 8923 CCUUUUGGG 5346 CCCACAG GGCTAGCTACAACGA CAGACCC 6332 8924 CAACCUU A CGAUGCGA 5346 AGCTCAC GGCTAGCTACAACGA CAGACCC 6332 8925 CCUUUUGGG G CCCCCCC 5350 GGCTAGCTACAACGA CAGACGA CAGACCC 6332 8926 GGAUCCCA CCCCCCC 5350 GGCTAGCTACAACGA CAGACGA CAGACCC 6332 8927 CACUUUGGG A UCCCAGCC 5350 GGCTAGCTACAACGA CAGACGA CAGACTCA 6332 8929 AACCUUA A CAGAUGU A TCCCACC 5350 GGCTAGCTACAACGA CAGACGA CAGACGA			5328	GTGAACCG GGCTAGCTACAACGA CGGCGGAG	6316
2876   GIUCACCC A CAGAGUG   5331   CACTOTOS GICTAGCTACAACGA GIGTAAC   6318   2882   CACACAGA G UGAUGUGU   5332   ACACATCA GICTAGCTACAACGA TOTOGTOS   6320   2885   CACAGAGU A UGUGUGGA   5331   TACACACA GICTAGCTACAACGA CACTOTOS   6321   2887   AGAGUGAU G UGUGUGGA   5331   ACTCCACA GICTAGCTACAACGA CACTOTOS   6322   2887   AGAGUGAU G UGUGUGGA   5331   ACTCCACA GICTAGCTACAACGA CACTOTOS   6322   2889   AGUGUAUG G UGAGUGU   5334   ACTCCACA GICTAGCTACAACGA ACTCACT   6322   2899   AGUGUAUG G UUAUGUGG   5335   TACACCAC GICTAGCTACAACGA ACTCACA   6324   2897   GUGGAGU A UGUGUGA   5337   TACACCAC GICTAGCTACAACGA ACTCACA   6324   2897   GUGGAGU A UGUGACU   5338   CACACTTA GICTAGCTACAACGA ACTCACA   6324   2890   GUGUAUG G UGACUGU   5338   CACACTCA GICTAGCTACAACGA ACTTACAC   6325   2890   GUGUAUG G UGACUGU   5338   CACACTCA GICTAGCTAACGA ACTTACAC   6327   2890   GUGUGACU G UGUGGAGU   5334   CACACTCA GICTAGCTACAACGA ACTTACAC   6327   2890   GUGUGACU G UGUGGAGG   5341   CTCCCACA GICTAGCTACAACGA ACTCACAC   6328   2910   GUGUGACU G UGUGGAGC   5342   AGCTCCC   GICTAGCTACAACGA ACACCAC   6329   2916   GUGUGGAG   CUAUGAC   5343   CTCCACA GICTAGCTACAACGA ACACCAC   6329   2916   GUGUGGAG   CUAUGAC   5343   AGCTCCC   GICTAGCTACAACGA ACACCAC   6331   2920   GUGUGGAG   CUAUGAC   5344   AAAACTC   GICTAGCTACAACGA ACACCAC   6331   2920   GUGUGGAG   CUAUGAC   5344   AAAACTC   GICTAGCTACAACGA ACACCAC   6331   2920   GUGUGGAG   CUAUGAG   5344   AAAACTC   GICTAGCTACAACGA ACACCAC   6332   2923   AGUGAGC   A UCCUCAG   5346   AGGTTACG GICTAGCTACAACGA ACACCC   6332   2924   CAAACCU   A GAUGUGG   5346   AGGTTAGC GICTAGCTACAACGA ACACCC   6332   2924   CAAACCU   A GAUGGGA   5346   AGGTTAGC GICTAGCTACAACGA AGGTTACAACGA   AGGTTAGCTACACGA   AGGTTAGCTACAACGA   AGGTTAGCTACAACG	2868		5329	TGGGTGAA GGCTAGCTACAACGA CGCCGGCG	6317
2882 CCACCAGA G UGAUGUGU 5331 ACACATCA GGCTAGCTACAACGA TCTGGTGG 6329 2885 CCAGAGUG A UGUGUGGA 5333 TCCACACA GGCTAGCTACAACGA ACTCTGG 6329 2887 AGAGUGAU G UGUGGAGU 5334 ACTCCACA GGCTAGCTACAACGA ACACTCTG 6322 2889 AGUGAUGU G UGGAGUUA 5335 TAACTCCA GGCTAGCTACAACGA ACACTCACT 6322 2899 AGUGAUGU G UGGAGUUA 5335 TAACTCCA GGCTAGCTACAACGA ACACTCACT 6322 2899 AGUGAGUGA UGUGGAGU 5335 TAACTCCAC GGCTAGCTACAACGA ACACTCACT 6322 2890 GUGGAGU A UGUGUGGA 5336 CACCATA GGCTAGCTACAACGA ACACTCAC 6328 2891 GUGUAGGU G UGUGACUU 5338 CAGTCACA GGCTAGCTACAACGA ACACTCAC 6328 2890 GUGUAGGU G UGUGACUU 5338 CAGTCACA GGCTAGCTACAACGA ACACTCAC 6328 2902 GUUAUGGU G UGUGACUU 5339 CACACTCA GGCTAGCTACAACGA ACACTCAC 6327 2903 GUUAUGGU G UGUGACUU 5339 CACACTCA GGCTAGCTACAACGA ACACTCAC 6327 2906 GUUAUGGU G UGUGAGUU 5339 CACACTCA GGCTAGCTACAACGA ACACTCAC 6327 2910 GUGACUU G UGUGGAGCU 5342 ACACTCCA GGCTAGCTACAACGA ACACTCAC 6329 2910 GUGACUU G UGUGGAGCU 5342 ACACTCCA GGCTAGCTACAACGA ACACTCAC 6329 2910 GUGACUU G UGUGGAGCU 5342 ACACTCCA GGCTAGCTACAACGA ACACTCAC 6329 2910 GUGACUU G UGUGAGACU 5343 GTCATCAG GGCTAGCTACAACGA ACACTCAC 6329 2910 GUGACUU G UGUGAGACU 5344 AAAAGTCA GGCTAGCTACAACGA ACACTCAC 6331 2920 GAGACUG A CUUAUGGG 5345 AAAAAGTCA GGCTAGCTACAACGA ACACTCAC 6332 2921 GAGACUG A CUUAUGGG 5345 AAAAAGTCA GGCTAGCTACAACGA ACACTCC 6332 2922 CUUUAGGG G CCAAACCU 5346 AGGTTTGG GGCTAGCTACAACGA CACCAC 6332 2923 ACCUBAUG A CUUAUGGG 5345 AGGTTTGG GGCTAGCTACAACGA CACCAC 6332 2924 CAAACCUU A GGAUGAGA 5347 TCGTAACG GGCTAGCTACAACGA CACCAC 6332 2925 CAUUACG A UGUGAGAC 5348 TCCCACG GGCTAGCTACAACGA CACCAC 6332 2926 GGGCCAA A CCUUACGA 5347 GGCTAGCTACAACGA CACCAC 6335 2927 GAGCCAA A CCUUACGA 5347 GGCTAGCTACAACGA CACCAC 6335 2928 CCUUACGA A UGUGAGAC 5349 GGTAGCTACAACGA CACCACCC 6335 2929 CACACUUA A CAUACGA 5352 GCTAGCTACAACGA CACCACCC 6335 2920 AGGACCA A CCUUACGA 5354 GCTAGCTACAACGA CACCACC 6336 2920 CACACACU A CCUUACGA 5355 GCTAGCTACAACGA CACCACC 6336 2921 AAACCUU A CAUACGA 5352 GCTAGCTACAACGA CACCACTCT 6339 2920 CACACAC GCCCACA 5355 GCTAGCTACAACGA CACCACTCT 6339 2920 CACAC	2872	GGCGGUUC A CCCACCAG	5330	CTGGTGGG GGCTAGCTACAACGA GAACCGCC	6318
2885         COAGGUO A UGUGUGGA         5332         TCCACACA GGCTAGCTACAACGA CACTCTG         6322           2887         AGAGUGAU G UGUGGAGU         5334         ACTCCACA GGCTAGCTACAACGA ACACTCTC         6322           2889         AGUGANUGU G UGGAGUUA         5334         ACTCCACA GGCTAGCTACAACGA ACACTCTC         6322           2894         UGUGUGGA G UUAUGGUG         5336         CACCATAA GGCTAGCTACAACGA ACACCACA         6324           2897         GUGGAGUU A UGUGUGGA         5337         TCACACCA GGCTAGCTACAACGA ACACCACA         6324           2900         GAGUUAUG G UGACUGU         5338         CAGTCACA GGCTAGCTACAACGA ACACTACCAC         6326           2905         AUAGUGUG G UGACUGU         5339         CACACTCA GGCTAGCTACAACGA ACCACACT         6228           2905         AUAGUGUG G UGUGAGG         5341         CTCCCACA GGCTAGCTACAACGA ACCACAC         6322           2906         GUGUGACU G UGGGAGC         5342         AGCTCCC AGCTAGCTACAACGA ACCACACC         6322           2916         GUGUGGGA G CUGAUGGA         5343         GTCATCAG GGCTAGCTACAACGA ACCACACC         6322           2916         GUGUGGGA G CUGAUGGA         5344         AAAACTCA GACCACACACA ACCACCACC         6332           29216         GUGGAGCUA A UGACUGUA         5344         AAAACACA ACCACACACA ACCACACCACC	2876	GUUCACCC A CCAGAGUG	5331	CACTCTGG GGCTAGCTACAACGA GGGTGAAC	6319
2887         AGAGUGAU G UGUGAGU         5334         ACTCCACA GGCTAGCTACACGA ATCACT         6322           2889         AGUGAUGU G UGAGAGUU         5335         TAACTCCA GGCTAGCTACACGA ACTCACT         6323           2894         UGUGUGAG G UUAUGUG         5335         TAACTCCA GGCTAGCTACAACGA TCCACACA         6324           2897         GUGGAGUU A UGUGACUG         5337         TCACACCA GGCTAGCTACAACGA ACTCACC         6325           2900         GAUULAUG G UGUGACUG         5338         CACACTCA GGCTAGCTACAACGA ACTCACC         6325           2902         GUULAUGU G UGUGACUG         5339         CACACTCA GGCTAGCTACAACGA ACTCACT         6326           2906         GUULAUGU G UGUGGAG         5340         CCACACAG GGCTAGCTACAACGA ACCACCT         6328           2908         GUGUACU G UGUGAGAG         5341         CTCCCACA GGCTAGCTACAACGA ACCACCT         6329           2916         GUGUAGGAG C UGAUGAGA         5343         GTCACTCA GGCTAGCTACAACGA ACGTCAC         6329           2916         GUGUAGUG G UGACUUL         5344         AGCTCACA         GGCTAGCTACAACGA ACCTCACACGA         5343           2920         GGAGCUCA I UGACUULU         5344         AACCUCACAACCC         6329           2921         GGAGCUCA I UGACUULUGGG         5345         CCCAAAACGA CACACACCU         5346	2882	CCACCAGA G UGAUGUGU	5332	ACACATCA GGCTAGCTACAACGA TCTGGTGG	6320
2889 AGUGAUGU G UGGAGUUA 5335 TARCTCCA GGCTAGCTACAACGA ACATCACT 6322 2894 UUGUGGAG G UUAUGGUG 5336 CACCATAA GGCTAGCTACAACGA ACATCACCA 6324 2897 GUGGAGUU A UGGUGUGA 5337 TCACACCA GGCTAGCTACAACGA ACATCACCA 2902 GUUAUGGU G UGACUGUG 5338 CAGTCACA GGCTAGCTACAACGA ACATAACTC 6325 2902 GUUAUGGU G UGACUGUG 5339 CACAGTCA GGCTAGCTACAACGA ACATAACTC 6326 2902 GUUAUGGU G UGACUGUG 5339 CACAGTCA GGCTAGCTACAACGA ACATAACTC 6327 2905 AUGGUGUG C UGUGGAGG 5340 CCACACAG GGCTAGCTACAACGA ACATAACT 6327 2906 GUGUAACU G UGUGGAGG 5341 CTCCCACA GGCTAGCTACAACGA ACATAAC 6329 2910 GUGUAACU G UGUGGAG 5341 CTCCCACA GGCTAGCTACAACGA ACATCAC 6329 2910 GUGUAACU G UGUGGAG 5342 AGCTCCCA GGCTAGCTACAACGA ACATCAC 6329 2910 GUGUACUGU G UGGAGGCU 5342 AGCTCCCA GGCTAGCTACAACGA ACATCAC 6330 2920 GGCAGCUG A UGACUGUU 5344 AAAAGTCA GGCTAGCTACAACGA ACCACCAC 6331 2920 GGCAGCUG A UGACUGUU 5344 AAAAGTCA GGCTAGCTACAACGA CACTCAC 6332 2933 AGCUGAUG A CUUUUGGG 6 CCAAACCUU 546 AGGTTTGG GGCTAGCTACAACGA ACCACACAC 2942 CAAACCUU A CCAUAGGA 5347 TCGTAAGG GGCTAGCTACAACGA CACCACAC 2942 CAAACCUU A CCAUAGGA 5347 TCGTAAGG GGCTAGCTACAACGA CAGCATCAC 2942 CAAACCUU A CCAUAGGA 5347 TCGTAAGG GGCTAGCTACAACGA TGGCCC 6335 2942 CAAACCUU A CCAUAGGA 5347 TCGTAAGG GGCTAGCTACAACGA ACGTTTGG 6336 2945 ACCUUACG A UGGGAUCC 5349 GGATCCCA GGCTAGCTACAACGA CCCAAAAG 2946 ACCUUA C CCAUAGGA 5347 TCGTCAGG GGCTAGCTACAACGA CCCACACGA 2940 CAAACCUU A CCAUAGGA 5347 TCGTCAGG GGCTAGCTACAACGA CCCACACGA 2940 CAAACCUU A CCAUAGGA 5347 TCGTCAGG GGCTAGCTACAACGA CCCACACGA 2940 CAAACCUU A CCAUAGGA 5340 TCCCCCAG GGCTAGCTACAACGA CCCACCAGG 6336 2945 ACCUUACG A UCCCAGCC 5350 GGCTCGGGG GGCTAGCTACAACGA CCCACCGG 6336 2946 CACGAGGAG A UCCCAGCC 5350 GGCTGGGG GGCTAGCTACAACGA CCCACCGG 6340 TCCCCCAGGG GGCTAGCTACAACGA CCCACCGGG 6340 TCCCCCAGC GCCCCCAGC 5357 GGCGGGG GGCTAGCTACAACGA CAGGATCC 6341 2991 GAGGGGGC G CCGCCCC 5357 GGCGGGG GGCTAGCTACAACGA CAGGATCG 6342 2991 AAGGGGGG G CGCCCCCAGC 5359 GGCGGGGGGGGGGGGGCTACACACGA CAGCACCG 6344 2994 GGGGAGCG G CGCCCCA 5359 GGCGGGGGGGGGGCTACACACGA CAGCACCG 6344 2994 GGGGAGCG G CCACAGCC 5359 GGCGC	2885	CCAGAGUG A UGUGUGGA	5333	TCCACACA GGCTAGCTACAACGA CACTCTGG	6321
2894         UGUGUGGA G UUNUGGUG         5336         CACCATAA GGCTACACAGA TCCACAC         6322           2897         GUGGAGUU A UGGUGUGA         5337         TCACACCA GGCTACATCAACGA ACTCCAC         6326           2900         GAGUUAUG G UGUGACUG         5338         CAGTCACA GGCTACATCAACGA ACTCAAC         6326           2902         GUUNUGGU G UGUGUGG         5339         CACACAG GGCTACATCAACGA ACTCATAC         6327           2905         AUGUGUGA C UGUGUGGG         5340         CCACACAG GGCTACATCAACGA ACTCACCA         6329           2906         GUUGACUG U GUGUGGAG         5341         CTCCCACA GGCTACATCAACGA ACTCACCA         6329           2916         GUUGAGGAG U GUGGAGCU         5342         AGCTCCCA GGCTACACACACGA ACGTCAC         6332           2920         GGCAGCUG A UGACUGU         5343         GTCACTCA GGCTACACACGA ACGTCACC         6332           2923         AGGUGUG A CUULAGGA         5345         CCCAAAAG GGCTACACACACCC         6326           2923         AGGUGUG A CUULAGGA         5346         AGGTTTGGCTACAACGA CACCACCC         6336           2937         GGGGCCAA A CCUULAGGA         5347         TCCCATCG GCTACACCACACAGA CACCACCC         6336           2937         GGGGCCACCUULA CACCACCC         5346         AGGTTACCACACACACACCCC         6336	2887	AGAGUGAU G UGUGGAGU	5334	ACTCCACA GGCTAGCTACAACGA ATCACTCT	6322
2897         GUGGAGUU A UGGUGUA         5337         TCACACCA GGCTAGCTACACGA AACTCCA         6328           2900         GAGUUAUG G UGUGACUG         5338         CAGTCACA GGCTAGCTACAACGA CATAACTC         6326           2902         GUUAUGGU G UGACUGUG         5338         CAGTCACA GGCTAGCTACAACGA CACATTACC         6327           2905         AUGUUAUGU G UGACUGUG         5340         CCACACAG GGCTAGCTACAACGA CACACCAT         6328           2908         GUUAUGAU G UGGGAGG         5341         CTCCCACA GGCTAGCTACAACGA ACTCCACC         6329           2910         GUGACUGU G UGGGAGCU         5342         AGCTCCCA GGCTAGCTACAACGA ACTCCACC         6329           2910         GUGACUGU G UGGGAGCU         5343         GTCATACA GGCTAGCTACAACGA TCCCACC         6331           2916         GUGACUGU A UGACUUUU         5344         ARAROTCA GGCTAGCTACAACGA CATCAGCT         6332           2920         AGGAGCUG A UGACUUUU         5346         AGGTTTGG         GGCTAGCTACAACGA CATCAGCT         6332           2937         AGGGCAAA A CCUUACGA         5346         AGGTTTGG         GGCTAGCTACAACGA CATCAGCT         6332           2942         CAAACCUU A CAUGAGGA         5347         TCCCAGGG GGCTAGCTACAACGA AGGTTTGG         6337           2942         CAAACCUU A CAUGAGGA         5340         GGATGGGT	2889	AGUGAUGU G UGGAGUUA	5335	TAACTCCA GGCTAGCTACAACGA ACATCACT	6323
28971         GUGGAGUU A UGGUGUGA         5337         TOCACACOA GGCTAGCTACAACGA AACTCCAC         6325           2900         GAGUUAUG G UGUGACUG         5338         CAGTCACA GGCTAGCTACAACGA CATAACT         6326           2902         GUUAUGGU G UGACUGUG         5339         CACACACA GGCTAGCTACAACGA CACACTAC         6327           2905         AUGGUGUG U GUGGGAG         5340         CCACACAG GGCTAGCTACAACGA CACACCAT         6328           2910         GUGGACUG U GUGGGAGG         5341         CTCCCACA GGCTAGCTACAACGA AGCTCACAC         6329           2910         GUGACUGU G UGGGAGGC         5342         AGCTCCCA GGCTAGCTACAACGA AGCTCACAC         6321           2920         GGGAGCUG A UGACUUUU         5344         AAAAGTCA GGCTAGCAACGA CAGCTCCC         6331           2921         AGCUGAUG A CUUUUGG         5345         CCCAAAAG GGCTAGCTACAACGA CACACCC         6332           2922         CGGGGCCA A CCUUAUGG         5345         CCCAAAAG GGCTAGCTACAACGA CACACACC         6333           2937         GGGGCCAA A CCUUAGA         5347         TCCTAGAG GGCTAGCTACAACGA CACACACACACACACACACACACACACACACA	2894	UGUGUGGA G UUAUGGUG	5336	CACCATAA GGCTAGCTACAACGA TCCACACA	
2900         GAGUUAUG G UGICAGUG         5338         CACTCACA GGCTAGCTACAACGA ACCATAAC         6326           2902         GUUAUGGU G UGACUGUG         5339         CACAGTCA GGCTAGCTACAACGA ACCATAAC         6327           2905         AUGGUGUG A CUGUGUGG         5340         CCACACAG GGCTAGCTACAACGA ACCACCAC         6328           2908         GUGUGACUG G UGGGAGCU         5341         CTCCCACA GGCTAGCTACAACGA ACCACCAC         6329           2910         GUGUGGGA         5341         AGCTCCCA GGCTAGCTACAACGA ACAGTCAC         6329           2916         GUGUGGGA         GUGUGACUGU         5344         AAAAGTCA GGCTAGCTACAACGA CAGCTCC         6331           2920         GGGAGCUG A UGACUUUU         5344         AAAAGTCA GGCTACCACACAC CACCACC         6332           2923         AGCUGAUG A CUUUUGGG         5346         AGGTTTGG GGCTACAACACA CACACACC         6332           2932         CUUUUGGG         5346         AGGTTTGG GGCTACAACGA CACACACACC         6332           2937         GGGGACCA A CCUUACGA         5347         TCCATCG GCTAGCTACAACGA CAGAAAGT         6336           2942         CAAACCUU A CAGAGCA         5349         GGATCCCA GCTACAACAA ACGAAAAA         6332           2956         ACGUUACGA         5350         GGCTGGGA GGCTACCTACAACAA CACAAAAAAAAAAAA	2897	GUGGAGUU A UGGUGUGA		TCACACCA GGCTAGCTACAACGA AACTCCAC	
2902         GUNANGGU G UGACUGUG         5339         CACAGTCA GGCTAGCTACAACGA ACCATAAC         6327           2905         AUGGUGUG A CUGUGUGG         5340         CCACACAG GGCTAGCTACAACGA ACCACCAT         6328           2908         GUGUGACU G UGUGGGAG         5341         CTCCCACA GGCTAGCTACAACGA ACGACCAC         6329           2910         GUGACUGU G UGGAGACU         5342         AGCTCCCA GGCTAGCTACAACGA ACGACCAC         6330           2920         GGGAGCUG A UGACUUUU         5344         AAAAGTCA GGCTAGCTACAACGA CACTCACC         6332           2923         AGCUGAUG A CUUUUGGG         5345         CCCCAAAAG GGCTAGCTACAACGA CACTCAACG         6332           2932         CGUUUGGG C CAAACCU         5346         AGGTTTGG GGCTAGCTACAACGA CACTCAAAG         6332           2937         GGGGCCAA A CCUUACGA         5347         TCGTAAAG GGCTAGCTACAACGA CACTAAAG         6336           2942         CAAACCUU A CAGUGGA         5347         TCCCATAC GGCTAGCTACAACGA CAGTAGTGT         6337           2950         ACGUUACGA UGGALCC         5349         GGATCCCA GGCTAGCTACAACGA CAGTAGTGT         6337           2950         ACGUUACGA UCCAGCC         5350         GGCTGGGGA GGCTAGCTACAACGA CAGTAGTGT         6332           2956         CCCCAGGAG         5351         CTCCCGGGA GGCTTACAACGA TCGCCCGG <td< td=""><td>2900</td><td>GAGUUAUG G UGUGACUG</td><td></td><td>CAGTCACA GGCTAGCTACAACGA CATAACTC</td><td></td></td<>	2900	GAGUUAUG G UGUGACUG		CAGTCACA GGCTAGCTACAACGA CATAACTC	
2905         AUGGUGUG A CUGUGUGG         5340         CCACACAG GGCTAGCTACAAGGA CACACCAT         6328           2908         GUGUGACU G UGUGGGAG         5341         CTCCCACA GGCTAGCTACAAGGA AGTCACAC         6329           2910         GUGACUGU G UGUGGAGC         5342         AGCTCCCA GGCTAGCTACAACGA ACAGTCAC         6330           2916         GUGUGGGA G CUGAUGAC         5343         AGCTCCA GGCTAGCTACAACGA CAGCACC         6331           2920         GGGAGCUG A UGACUUUU         5344         AAAAGTCA GGCTAGCTACAACGA CAGCACCC         6332           2923         AGCUGAUG A CUUUUGG         5345         CCCAAAAG GGCTAGCTACAACGA CATCAGCT         6334           2937         GGGGCAA A CCUUACGA         5346         AGGTTTGG GGCTAGCTACAACGA CATCAGCT         6334           2937         GGGGCCAA A CCUUACGA         5347         TCCCATCG GGCTAGCTACAACGA CAGTAGGT         6332           2942         CAAACCUU A CGAUGCC         5349         GGATCCCA GGCTAGCTACAACGA CAGTAGGT         6336           2945         ACCUUACGA         4 UCCCAGCC         5350         GGCTGGGA GCTAGCTACAACGA CCCATCGT         6332           2956         GGAUCCCA G CCCGGCC         5350         CTCCCGGG GCTAGCTACAACGA CAGGATC         6340           2972         GAUCCCUG A CCUCAGCC         5352         GTCAGGGG GCTAGCTACAACGA CAGGCA	2902	GUUAUGGU G UGACUGUG		CACAGTCA GGCTAGCTACAACGA ACCATAAC	
2908         GUGUGACU G UGGGAGCU         5341         CTCCCACA GGCTAGCTACAGGA AGGCACC         6329           2910         GUGACUGU G UGGGAGCU         5342         AGCTCCCA GGCTAGCTACAAGGA ACAGTCAC         6332           2916         GUGUGGGA G CUGAUGAC         5343         GTCATCAG GGCTAGCTACAACGA CACCACC         6331           2920         GGGAGCUG A UGACUUUU         5344         AAAAGTCA GGCTAGCTACAAGGA CACCAACC         6332           2932         CUUUUGGG G CCAAACCU         5346         AGGTTTTGG GGCTAGCTACAAGGA CACAAAG         6334           2937         GGGGCCAA A CUUUACGA         5347         TCGTAAGG GGCTAGCTACAACGA TTGGCCC         6335           2942         CAAACCUU A CGAUGGGA         5348         TCCCATTCG GGCTAGCTACAACGA TTGGCCC         6335           2945         ACCUUACG A UGGGAUCC         5349         GGATCCCA GGCTAGCTACAACGA AAGGTTTG         6337           2950         ACGAUGGG A UCCCAGCC         5350         GGTTGGGTAGCTACAACGA AGGTTCC         6339           2955         ACGAUGGG A UCCCUGAC         5351         CTCCCGGG GGCTAGCTACACCAG CCCATCGT         6342           2972         GAUCCCUG A CCUGACC         5353         CCAGCAG GGCTAGCTACAACGA AGGGATCCC         6342           2975         ACGCAGCG G CUGCC         5355         CCAGCAG GGCTAGCTACAACGA AGGTCCCCT         63	2905	AUGGUGUG A CUGUGUGG		CCACACAG GGCTAGCTACAACGA CACACCAT	
2910         GUGACUGU G UGGAGCU         5342         AGCTCCCA GGCTAGCTACAACGA ACGTCAC         6330           2916         GUGUGGGA G CUGAUGAC         5343         GTCATCAG GGCTAGCTACAACGA TCCCACC         6331           2920         GGGAGCUG A UGACUUUU         5344         AAAAGTCA GGCTAGCTACAACGA CACGCCC         6332           2923         AGCUGAUG A CUUUUGGG         5345         CCCAAAAG GGCTAGCTACAACGA CATCAGCT         6333           2937         GGGGCAA A CUUUACGA         5346         AGGTTTGG GGCTAGCTACAACGA CCCAAAAG         6334           2937         GGGGCAA A CCUUACGA         5347         TCGTAAGG GGCTAGCTACAACGA CCCAAAGG         6334           2942         CAAACCUU A CGAUGGA         5348         TCCCATCG GGCTAGCTACAACGA CCATAGGT         6336           2945         ACCUUACG A UGGGAUCC         5349         GGATCCCA GGCTAGCTACAACGA CCCATCGT         6332           2956         GCAGGAG A UCCCAGCC         5350         GGCTGGGA GGCTAGCTACAACGA CCCATCGT         6339           2957         GAUCCCU A CUCCAGCC         5351         CTCCCGGG GGCTAGCTACAACGA CAGCATCC         6340           2972         GAUCCCU A CUCGCUGG         5353         CTCCCGGG GGCTAGCTACAACGA CAGCATCC         6342           2972         GAUCCCU G CUGGAAAA         5354         TTTTCCAG GGCTAGCTACAACGA CAGCATCC <td< td=""><td>2908</td><td>GUGUGACU G UGUGGGAG</td><td></td><td>CTCCCACA GGCTAGCTACAACGA AGTCACAC</td><td></td></td<>	2908	GUGUGACU G UGUGGGAG		CTCCCACA GGCTAGCTACAACGA AGTCACAC	
2916         GUGUGGGA G CUGAUGAC         5343         GTCATCAG GGCTACCAACAGA TCCCACAC         6331           2920         GGGAGCUG A UGACUUUU         5344         AAAAGTCA GGCTACCAACAGA CAGCTCCC         6332           2922         AGCUGAUG A CUUUUGGG         5345         CCCAAAAG GGCTACCACAGA CATCAGCT         6332           2932         CUUUUGGG G CCAAACCU         5346         AGGTTTG GGCTACACACGA CATCAGCT         6333           2937         GGGGCCAA A CCUUACGA         5347         TCGTAAGG GGCTAGCTACAACGA TTGGCCC         6335           2942         CAAACCUU A CGAUGGGA         5348         TCCCATCG GGCTAGCTACAACGA CGTAGGT         6336           2945         ACCUUACG A UGGGACC         5349         GGATCCCA GCTACAACGA CGTAGCTACAACGA CGTAGGT         6337           2945         ACAUGACA G CCCGGGAG         5350         GGCTGGGA GCTAGCTACAACGA CCCATCGT         6338           2956         GGAUCCCA G CCCGGGAG         5351         CTCCCGGGA GCTAGCTACAACGA CCCATCGT         6332           2976         CCCGGGAG A UCCCUGAC         5352         GTCAGGGA GGCTAGCTACAACGA CAGGGATC         6339           2977         GAUCCCUG A CCUGCUGG         5353         CCAGGAGG GGCTAGCTACAACGA AGGTCCCCT         6341           2997         AGGGGAG G CGGCCCCCCA         5355         GGCACCGG         GGCTAGCTACAACGA A	2910	GUGACUGU G UGGGAGCU	<del>                                     </del>	AGCTCCCA GGCTAGCTACAACGA ACAGTCAC	
2920         GGGAGCUG A UGACUUUU         5344         AAAAGTCA GGCTACCACACGA CAGCTCCC         6332           2923         AGCUGAUG A CUUUUGGG         5345         CCCAAAAG GGCTACCTACAACGA CATCAGCT         6333           2932         CUUUUGGG C CCAAACCU         5346         AGGTTAGGTACAACGA CATCAAACG         6334           2937         GGGGCCAA A CCUUACGA         5347         TCCTAAGG GGCTACTACAACGA TTGGCCC         6335           2942         CAAACCUU A CGAUGGGA         5347         TCCTATAGG GGCTACAACGA TTGACACGA TAGGTAGTACAACGA AGGATTCT         6336           2945         ACCUUACG A UGGGAUCC         5349         GGATCCCA GGCTACCTACAACGA CCCATCCT         6336           2956         ACCUUACG A UCCCAGCC         5350         GGGTGGGA GGCTAGCTACAACGA CCCATCCT         6338           2956         GAUCCCA G CCCGGAG         5351         CTCCCGGG GGCTAGCTACAACGA CCCCCGGG         6340           2972         GAUCCCUG A CCUGCUGG         5352         CCAGCAGG GGCTACACAACGA AGGTCCAGG         6342           2973         AAGGGGGA G CUCCCCA S355         TCTTCCAG GGCTACACTACAACGA AGCTCCCCT         6342           2994         AGGGAGCG G CUCCCCCA S356         TGGGGCAG GGCTACCTACAACGA ACCTCCCT         6342           2997         AGGCGACG G CCCCCCAU         5358         ATGGGGCAG GGCTACCTACAACGA ACCTCCCC         6342	2916	GUGUGGGA G CUGAUGAC	····		
2923         AGCUGAUG A CUJUUGGG         5345         CCCAAAAG GGCTACCTACAACGA CATCAGCT         6332           2932         CUJUUGGG G CCAAACCU         5346         AGGTTTGG GGCTAGCTACAACGA CCCAAAAG         6334           2937         GGGGCCAA A CCUUACGA         5347         TCGTAAGG GGCTAGCTACAACGA TGGCCCC         6335           2942         CAAACCUU A CGAUGGGA         5348         TCCCAATG GGCTAGCTACAACGA AGGTTTTG         6336           2945         ACCUUACG A UGGGAUCC         5349         GGATCCCA GGCTACCAACGA CCATCGT         6337           2956         ACGAUGGG A UCCCUGAC         5350         GGCTGGGA GGCTAGCTACAACGA CCATCGT         6338           2956         GGAUCCCA G CCCGGGAG         5351         CTCCCGGG GGCTACCTACAACGA CTCCCGG         6339           2972         GAUCCCUG A CUGCUGG         5353         CCAGCAGG GGCTAGCTACAACGA CTCCCGG         6340           2974         GAUCCCUG A CUGCUGG         5353         CCAGCAGG GGCTACCTACAACGA CAGGACTCCCCT         6342           2991         AAGGGGA G CGCCUGCC         5355         GGCAGCCG GCTTACCTACAACGA CAGCCCTCCT         6342           2997         GAGCGCCG G CUCCCCCA         5356         TGGGCAG GGCTACCTACAACGA CACCCCTT         6342           2997         GAGCGGCU G CCCCCACU         5358         ATGGGGGG GCTACCTACAACGA CACCCCT			<del> </del>		
2932         CUUUUGGG G CCAAACCU         5346         AGGTTTGG GGCTACAACGA CCCAAAAG         6334           2937         GGGGCCAA A CCUUACGA         5347         TCGTAAGG GGCTAGCTACAACGA TTGGCCC         6335           2942         CAAACCUU A CGAUGGGA         5348         TCCCATCG GGCTAGCTACAACGA AGGTTTG         6336           2945         ACCUUACG A UGGGAUCC         5349         GGATCCCA GGCTAGCTACAACGA CTAACGA         6337           2950         ACGAUGGG A UCCCAGCC         5350         GGCTGGGA GGCTAGCTACAACGA TGGATACGA         6338           2955         GGAUCCCA G CCCGGAG         5351         CTCCCGGG GGCTAGCTACAACGA TGCCCGGG         6340           2955         CCCGGGAG A UCCCUGAC         5352         GTCAGGAG GGCTAGCTACAACGA TCCCCGG         6349           2976         CCUGACCU G CUGGAAAA         5351         CTCGCGGG GGCTAGCTACAACGA AGGTCAGG         6341           2991         AAGGGGAG G CUGCCCC         5355         GGCAGCCG GGCTAGCTACAACGA AGCCCCT         6342           2991         AAGGGGCU G CUCCCAC         5356         TGGGGCAG GGCTAGCTACAACGA AGCCCCT         6342           2997         GAGCAGCU G CCCCCACU         5356         TGGGCAG GGCTAGCTACAACGA AGCCGCTC         6345           2997         GACCCCCA G CCCCCCAU         5358         ATGGGGG GGCTAGCTACAACGA AGCGCTC         634	2923	AGCUGAUG A CULTUUGGG			
2937         GGGGCCAA A CCUUACGA         5347         TCGTAAGG GGCTACAACGA TTGGCCCC         6335           2942         CAAACCUU A CGAUGGA         5348         TCCCATCG GGCTAGCTACAACGA AAGGTTG         6336           2945         ACCUUACG A UGGGAUCC         5349         GGATCCCA GGCTAGCTACAACGA CGTAAGGT         6337           2950         ACGAUGGA UCCCAGCC         5350         GGCTGGGA GGCTACACAACGA CCCATCGT         6338           2956         GGAUCCCA G CCCGGAG         5351         CTCCCGGG GGCTAGCTACAACGA CCCATCGT         6339           2956         CCGGGAG A UCCCUGAC         5352         GTCAGGAG GGCTAGCTACAACGA CCCATCGT         6339           2972         GAUCCCUG A CCUGCUGC         5353         CCAGGAGG GGCTAGCTACAACGA CCGCCGG         6341           2976         CCUGACCU G CUGGANA         5354         TTTTCCAG GGCTAGCTACAACGA AGGTCAG         6341           2991         AAGGGGAG G CUGCCCA         5355         GGCAGCG GGCTAGCTACAACGA AGCTCCC         6342           2991         AAGGGGAG G CUCCCCA         5356         TGGGGCAG GGCTAGCTACAACGA AGCGCCC         6344           2991         GAGCAGCU G CCCCCACC         5357         GGCTGGGG GGCTAGCTACAACGA AGCGCCC         6345           3003         CUGCCCA G CCCCCAU         5358         ATGGGGGG GGCTAGCTACAACGA AGCGCCC         6349	2932				
2942         CAAACCUU A CGAUGGGA         5348         TCCCATCG GGCTAGCTACAACGA AAGGTTTG         6336           2945         ACCUUACG A UGGGAUCC         5349         GGATCCA GGCTAGCTACAACGA CGTAAGT         6337           2950         ACGAUGGG A UCCCAGC         5350         GGCTGGGA GGCTAGCTACAACGA CCATCGT         6338           2956         GGAUCCCA G CCCGGAG         5351         CTCCCGGG GGCTAGCTACAACGA TGGGATCC         6339           2965         CCCGGGAG A UCCCUGAC         5352         GTCAGGAG GGCTAGCTACAACGA CTCCCGGG         6340           2972         GAUCCCUG A CCUGCAAAA         5354         TTTTCCAG GGCTAGCTACAACGA CGACTCAG         6341           2976         CCUGACCU G CUGCACC         5355         GGCAGCG GGCTAGCTACAACGA CCCCCTT         6342           2991         AAGGGGA G CGCUCCC         5355         GGCAGCG GGCTAGCTACAACGA TCCCCCCT         6343           2994         GGGGAGCG C CUCCCCA         5356         TGGGGCAG GGCTAGCTACAACGA AGCGCCC         6344           2997         GAGCGCU G CCCCAGCC         5357         GGCTGGGA GGCTAGCTACAACGA AGCGGCAG         6345           3010         AGCCCCCA UCUGCAC         5359         GGTGAGCAG GGCTAGCTACAACGA AGCGGCAG         6347           3011         AGCCCCCA UCUGCAC         5359         GGTGAGCAG GGCTAGCTACAACGA AGCGGCAG         6348<					
2945         ACCUUACG A UGGGAUCC         5349         GGATCCCA GGCTAGCTACAACGA CGTAAGGT         6337           2950         ACGAUGG A UCCCAGCC         5350         GGCTGGGA GCTAGCTACAACGA CCCATCGT         6338           2955         GGAUCCCA G CCCGGGAG         5351         CTCCCGGG GGCTAGCTACAACGA CCCATCGT         6339           2965         CCCGGGAG A UCCCUGAC         5352         GTCAGGAG GGCTAGCTACAACGA CTCCCGG         6340           2972         GAUCCCUG A CCUGCUGG         5353         CCAGCAGG GGCTAGCTACAACGA CAGGGATC         6341           2976         CCUGACCU G CUGGAAAA         5354         TTTTCCAG GGCTAGCTACAACGA AGGTCAGG         6342           2991         AAGGGGAG G CUGCCCC         5355         GGCAGCG GGCTAGCTACAACGA AGCCCCCT         6343           2994         GGGAACCG G CUGCCCCA         5356         TGGGGCAG GGCTAGCTACAACGA AGCCGCCC         6345           3003         CUGCCCCA G CCCCCCAU         5358         ATGGGGGG GGCTAGCTACAACGA AGCGCCCC         6345           3010         AGCCCCCC A UCUGCACC         5359         GGTTGGGG GGCTAGCTACAACGA AGCGGCC         6345           3014         CCCAUCUG C ACCAUUG         5360         CAATGGTG GGCTAGCTACAACGA AGCGGCGC         6347           3014         CCCAUCUG A CCAUUGAU         5361         ATCAATGG GGCTAGCTACAACGA AGATGGG		· · · · · · · · · · · · · · · · · · ·	<del></del>		
2950         ACGAUGGG         A UCCCAGCC         5359         GGCTGGGA         GGCTAGCTACAACGA         CCCATCGT         6337           2956         GGAUCCCA         G CCCGGGAG         5351         CTCCCGGG         GGCTAGCTACAACGA         TGGGATCC         6339           2965         CCCGGGAG         A UCCCUGAC         5352         GTCAGCAG         GGCTAGCTACAACGA         CTCCCGGG         6340           2972         CAUGACCU         G CUGGAAAA         5353         CCAGCAGG         GGCTAGCTACAACGA         AGGGACG         6341           2991         AAGGGGAG         G CUGCCCCA         5355         GGCAGCCG         GGCTAGCTACAACGA         TCCCCCTT         6342           2991         AAGGGGAG         G CUGCCCCA         5356         TGGGGCAG         GGCTAGCTACAACGA         TCCCCCT         6344           2997         GAGCGCU         G CCCCCAU         5358         ATGGGGG         GGCTAGCTACAACGA         AGCCCCCC         6345           3003         CUGCCCCA         G CCCCCCAU         5358         ATGGGGG         GGCTAGCTACAACGA         AGGGGGCT         6345           3010         ASCCCCCC         A UCGACC         5359         GGTGCAGA         GGCTAGCTACAACGA         AGGGGGGCT         6347           3014					
2956         GGAUCCCA         G CCGGGAG         5350         CTCCCGGG         GGTAGCTACAACGA         TGGGATCC         6338           2965         CCCGGGAG         A UCCCUGAC         5352         GTCAGGGA         GGCTAGCTACAACGA         CTCCCGGG         6340           2972         GAUCCCUG         A CCUGCUGG         5353         CCAGCAGG         GGCTAGCTACAACGA         CAGGCAGG         6342           2976         CCUGACCU         G CUGACCU         5354         TTTTCCAG         GGCTAGCTACAACGA         AGCTCAGG         6342           2991         AAGGGGA         G CUGCCCA         5355         GGCAGCC         GGCTAGCTACAACGA         AGCCCCCC         6343           2997         GAGCGGU         G CCCCCCA         5355         TGGGGCAG         GGCTAGCTACAACGA         AGCCGCTC         6345           3003         CUGCCCCA         5358         ATGGGGGG         GGCTAGCTACAACGA         AGCCGCTC         6345           3010         AGCCCCCC         4 CUGGACC         5359         GGTGCAGA         GGCTAGCTACAACGA         AGCAGATGG         6346           3014         CCCAUCUG         G CACAUUG         5360         CAATGGT         GGCTAGCTACAACGA         AGCAGATGG         6349           3019         UCUGCAC         <			<del> </del>		
2965         CCCGGGAG A UCCCUGAC         5352         GTCAGGGA GGCTAGCTACAACGA CTCCCGGG         6340           2972         GAUCCUG A CCUGCUGG         5353         CCAGCAGG GGCTAGCTACAACGA CAGGGATC         6341           2976         CCUGACCU G CUGCAAAA         5354         TTTTCCAG GGCTAGCTACAACGA AGGTCAGG         6342           2991         AAGGGGAG G CUGCCC         5355         GGCAGCC GGCTAGCTACAACGA CGCTCCCC         6343           2994         GGGGAGCG G CUGCCCA         5356         TGGGCAG GGCTAGCTACAACGA CGCTCCC         6344           2997         GAGCGGCU G CCCCCAU         5358         ATGGGGG GGCTAGCTACAACGA AGCCGCTC         6345           3003         CUGCCCCA G CCCCCAU         5358         ATGGGGG GGCTAGCTACAACGA AGCGGCC         6346           3010         AGCCCCCC A UCUGCACC         5359         GGTGCAGA GGCTAGCTACAACGA GGGGGGCT         6347           3014         CCCCAUCU G CACCAUUG         5360         CAATGGT GGCTAGCTACAACGA GCAGATGG         6348           3019         UCUGCACC A UUGAUUC         5361         ATCAATGG GGCTAGCTACAACGA GCAGATGG         6349           3023         CACCAUUG A UUGAUUC         5362         GACATCAA GGCTAGCTACAACGA CATGATGG         6350           3024         UCACAUG A UUGAUGUC         5362         GACATCAA GGCTAGCTACAACGA CATGATGG         6352			<del>                                     </del>		6338
2972         GAUCCCUG A CCUGCUGG         5353         CCAGCAGG GGCTAGCTACAACGA CAGGGATC         6341           2976         CCUGACCU G CUGGAAAA         5354         TTTTCCAG GGCTAGCTACAACGA AGGTCAGG         6342           2991         AAGGGGA G CGCUGCC         5355         GGCAGCCG GGCTAGCTACAACGA TCCCCCTT         6343           2994         GGGGAGCG G CUGCCCCA         5356         TGGGGCAG GGCTAGCTACAACGA AGCTCCCC         6344           2997         GAGCGGCU G CCCCAGCC         5357         GGCTGGG GGCTAGCTACAACGA AGCCCCCC         6344           3003         CUGCCCCA G CCCCCCAU         5358         ATGGGGG GGCTAGCTACAACGA AGCCGCTC         6345           3010         AGCCCCCC A UCUGCACC         5359         GGTGCAGA GGCTAGCTACAACGA GGGGGGCT         6346           3014         CCCCAUCUG C ACCAUUG         5360         CAATGGT GGCTAGCTACAACGA GGGGGGGCT         6347           3019         UCUGCACC A UUGAUGU         5361         ATCAATGG GGCTAGCTACAACGA GGTCAGA         6350           3023         CACAUUG A UGAUGUC         5362         GACATCAA GGCTAGCTACAACGA CAATGGT         6351           3029         UGAUGUU A CAUGAUGA         5363         TGTAGACA GGCTAGCTACAACGA AGACATCA         6352           3029         UGAUGUU A CAUGAUG         5365         TGATCAT GGCTAGCTACAACGA AGACATCA         6			<del> </del>		6339
2976         CCUGACCU G CUGGAAAA         5354         TTTTCCAG GGCTAGCTACAACGA AGGTCAGG         6342           2991         AAGGGGGA G CGGCUGCC         5355         GGCAGCCG GGCTAGCTACAACGA TCCCCCTT         6343           2994         GGGAGCG G CUGCCCA         5356         TGGGGCAG GGCTAGCTACAACGA CGCTCCCC         6344           2997         GAGCGGCU G CCCCCAU         5358         ATGGGGG GGCTAGCTACAACGA AGCCGCTC         6345           3003         CUGCCCCA G CCCCCCAU         5358         ATGGGGG GGCTAGCTACAACGA AGCGGCGCT         6346           3010         AGCCCCCC A UCUGCACC         5359         GGTGCAGA GGCTAGCTACAACGA GGGGGGCT         6347           3014         CCCCAUCU G CACCAUUG         5360         CAATGGTG GGCTAGCTACAACGA AGATGGG         6348           3016         CCAUCUGC A CCAUUGAU         5361         ATCAATGG GGCTAGCTACAACGA AGATGG         6349           3019         UCUGCACC A UUGAUGUC         5362         GACATCAA GGCTAGCTACAACGA AGACATG         6350           3023         CACCAUUGA U GUCUACAU         5361         TGTAGACA GGCTAGCTACAACGA ATGATG         6351           3029         UGAUGUCU A CAUGAUCA         5363         TGTAGACA GGCTAGCTACAACGA AGACATCA         6352           3031         AUGUCUACA U UGAUCAU         5366         CATGATCA GGCTAGCTACAACGA CATGACA <t< td=""><td></td><td></td><td><del>1                                    </del></td><td></td><td>6340</td></t<>			<del>1                                    </del>		6340
2991         AAGGGGGA         CGGCUGCC         5355         GGCAGCCG         GGCTAGCTACAACGA         TCCCCCTT         6343           2994         GGGGAGCG         CUGCCCCA         5356         TGGGGCAG         GGCTAGCTACAACGA         CGCTCCCC         6344           2997         GAGCGGCU         G CCCCCAU         5357         GGCTGGGG         GGCTAGCTACAACGA         AGCCGCTC         6345           3003         CUGCCCCA         G CCCCCAU         5358         ATGGGGGG         GGCTAGCTACAACGA         AGCGGCCG         6346           3010         AGCCCCCC         A UUGCACC         5359         GGTGCAGA         GGCTAGCTACAACGA         AGATGGG         6348           3014         CCCAUCUG         C ACCAUUG         5360         CAATGAT         GGCTAGCTACAACGA         AGATGAG         6349           3019         UCUGCACC         A UUGAUGU         5361         ATCAATGG         GGCTAGCTACAACGA         GATGAGA         6350           3023         CACCAUUG         A UUCUACA         5363         TGTAGACA         GGCTAGCTACAACGA         CAATGGTG         6351           3025         CCAUUGAU         A CAUGAUCA         5365         TGATCATG         GGCTAGCTACAACGA         ATCAATGG         6352           3031 <td< td=""><td></td><td></td><td></td><td></td><td>6341</td></td<>					6341
2994         GGGGAGCG         CUGCCCCA         5356         TGGGGCAG         GGCTAGCTACAACGA         GGCTCCC         6344           2997         GAGCGGCU         G CCCCAGCC         5357         GGCTGGGG         GGCTAGCTACAACGA         AGCCGCCC         6345           3003         CUGCCCCA         G CCCCCCAU         5358         ATGGGGG         GGCTAGCTACAACGA         AGGGGGCT         6346           3010         AGCCCCCC         A UCUGCACC         5359         GGTGCAGA         GGCTAGCTACAACGA         AGATGGG         6347           3014         CCCCAUCUG         CACCAUUG         5360         CAATGGT         GGCTAGCTACAACGA         AGATGGG         6348           3016         CCAUUGCA         A CCAUUGAU         5361         ATCAATGG         GGCTAGCTACAACGA         GCAGATGG         6349           3019         UCUGCACC         A UGAUGAC         5362         GACATCAA         GGCTAGCTACAACGA         GATGATGA         6350           3023         CACCAUUGA         GAGA         CATGTAGCTACAACGA         CAATGGTG         6351           3025         CCAUUGAU         GAGATCA         GGCTAGCTACAACGA         CAATGATCA         6352           3029         UGAUGUU         A CAUGAUCA         5365         TGATCATG					6342
2997         GAGCGGCU G CCCCCAGCC         5357         GGCTGGGG GGCTAGCTACAACGA AGCCGCTC         6344           3003         CUGCCCCA G CCCCCCAU         5358         ATGGGGGG GGCTAGCTACAACGA TGGGGCAG         6346           3010         AGCCCCCC A UCUGCACC         5359         GGTGCAGA GGCTAGCTACAACGA GGGGGGCT         6347           3014         CCCCAUCU G CACCAUUG         5360         CAATGGTG GGCTAGCTACAACGA AGATGGG         6348           3016         CCAUCUGC A CCAUUGAU         5361         ATCAATGG GGCTAGCTACAACGA GGAGATGG         6349           3019         UCUGCACC A UUGAUGUC         5362         GACATCAA GGCTAGCTACAACGA GGTGCAGA         6350           3023         CACCAUUG A UGUCACA         5363         TGTAGACA GGCTAGCTACAACGA CAATGGTG         6351           3025         CCAUUGAU G UCUACAUG         5364         CATGTAGA GGCTAGCTACAACGA ATCAATGG         6352           3029         UGAUGUCU A CAUGAUCA         5365         TGATCATG GGCTAGCTACAACGA ATCAATCA         6353           3031         AUGUCACAU A UGAUCAUG         5366         CATGATCA GGCTAGCTACAACGA CATGTAGA         6354           3034         UCUACAUG A UCAUGUC         5367         GACCATGA GGCTAGCTACAACGA CATGTTGA         6355           3040         UGAUCAUG G UCAAAUGU         5368         TTTGACCA GGCTAGCTACAACGA CATGTT					6343
3003         CUGCCCCA G CCCCCCAU         5358         ATGGGGG GGCTAGCTACAACGA TGGGGCAG         6346           3010         AGCCCCC A UCUGCACC         5359         GGTGCAGA GGCTAGCTACAACGA AGATGGG         6347           3014         CCCCAUCU G CACCAUUG         5360         CAATGGTG GGCTAGCTACAACGA AGATGGG         6348           3016         CCAUCUGC A CCAUUGAU         5361         ATCAATGG GGCTAGCTACAACGA GCAGATGG         6349           3019         UCUGCACC A UUGAUGUC         5362         GACATCAA GGCTAGCTACAACGA GGTGCAGA         6350           3023         CACCAUUG A UGUCUACA         5363         TGTAGACA GGCTAGCTACAACGA CAATGGTG         6351           3025         CCAUUGAU G UCUACAUG         5364         CATGTAGA GGCTAGCTACAACGA ATCAATGG         6352           3029         UGAUGUCU A CAUGAUCA         5365         TGATCATG GGCTAGCTACAACGA ATCAATGG         6353           3031         AUGUCUAC A UGAUCAUG         5366         CATGATCA GGCTAGCTACAACGA GTAGACA         6353           3034         UCUACAUG A UCAUGGUC         5367         GACCATGA GGCTAGCTACAACGA CATGTAGA         6355           3040         UGAUCAUG G UCAAAUGU         5368         TTTGACCA GGCTAGCTACAACGA CATGATCA         6357           3045         AUGUCAA         5368         TTTGACCA GGCTAGCTACAACGA CATGATCA         6357<			5356		6344
3010 AGCCCCCC A UCUGCACC 5359 GGTGCAGA GGCTAGCTACAACGA GGGGGGCT 6347 3014 CCCCAUCUG G CACCAUUG 5360 CAATGGTG GGCTAGCTACAACGA AGATGGGG 6348 3016 CCAUCUGC A CCAUUGAU 5361 ATCAATGG GGCTAGCTACAACGA GCAGATGG 6349 3019 UCUGCACC A UUGAUGUC 5362 GACATCAA GGCTAGCTACAACGA GGTGCAGA 6350 3023 CACCAUUG A UGUCUACA 5363 TGTAGACA GGCTAGCTACAACGA CAATGGTG 6351 3025 CCAUUGAU G UCUACAUG 5364 CATGTAGA GGCTAGCTACAACGA ATCAATGG 6352 3029 UGAUGUCU A CAUGAUCA 5365 TGATCATG GGCTAGCTACAACGA AGACATCA 6353 3031 AUGUCUAC A UGAUCAUG 5366 CATGATCA GGCTAGCTACAACGA GTAGACAT 6354 3034 UCUACAUG A UCAUGGUC 5367 GACCATGA GGCTAGCTACAACGA GATCATG 6355 3037 ACAUGAUC A UGGUCAAA 5368 TTTGACCA GGCTAGCTACAACGA GATCATGT 6356 3040 UGAUCAUG G UCAAAUGU 5369 ACATTTGA GGCTAGCTACAACGA GATCATGT 6356 3045 AUGUCAA A UGUUGGAU 5370 ATCCAACA GGCTAGCTACAACGA TTGACCAT 6358 3047 GGUCAAAU G UUGGAUGA 5371 TCATCCAA GGCTAGCTACAACGA CTTGACCAT 6359 3052 AAUGUUGG A UGAUUGAC 5372 GTCAATCA GGCTAGCTACAACGA CATCAAC 6361 3059 GAUGAUUG A UUGACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CATCAAC 6361 3059 GAUGAUUG A UUGACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CATCCAAC 6361 3059 GAUGAUUG A UUGACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CATCCAAC 6361 3059 GAUGAUUG A UUGACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CATCCAAC 6361 3059 GAUGAUUG A UUGACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CATCCAAC 6361 3059 GAUGAUUG A UUGACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CATCCAAC 6361 3059 GAUGAUUG A UUGACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CAACATT 6360 3066 GACUCUGAA UUGACCC 5375 GGCCGACA GGCTAGCTACAACGA CAACATC 6363 3068 CUCUGAAU G UCGGCCAA 5376 TTGGCCGA GGCTAGCTACAACGA ATCCAAC 6364 3072 GAAUGUCG C CAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA ATCCAAC 6364 3072 GAAUGUCG C CAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA CAACATT 6366			5357		6345
3014         CCCCAUCU G CACCAUUG         5360         CAATGGTG GGCTAGCTACAACGA AGATGGGG         6348           3016         CCAUCUGC A CCAUUGAU         5360         ATCAATGG GGCTAGCTACAACGA AGATGGG         6348           3019         UCUGCACC A UUGAUGUC         5362         GACATCAA GGCTAGCTACAACGA GGTGCAGA         6350           3023         CACCAUUG A UGUCUACA         5363         TGTAGACA GGCTAGCTACAACGA CAATGGTG         6351           3025         CCAUUGAU G UCUACAUG         5364         CATGTAGA GGCTAGCTACAACGA AGACATCA         6352           3029         UGAUGUCU A CAUGAUCA         5365         TGATCATG GGCTAGCTACAACGA AGACATCA         6353           3031         AUGUCUAC A UGAUCAUG         5366         CATGATCA GGCTAGCTACAACGA GTAGACAT         6354           3034         UCUACAUG A UCAUGGUC         5367         GACCATGA GGCTAGCTACAACGA CATGTAGA         6355           3037         ACAUGAUC A UGGUCAAA         5368         TTTGACCA GGCTAGCTACAACGA CATGATCA         6356           3040         UGAUCAUG G UCAAAUGU         5369         ACATTTGA GGCTAGCTACAACGA CATGATCA         6357           3045         AUGGUCAA A UGUUGAU         5370         ATCCAACA GGCTAGCTACAACGA TTGACCAT         6358           3047         GGUCAAAU G UUGGAUGA         5371         TCATCCAA GGCTAGCTACAACGA CAACATT			5358		6346
3016 CCAUCUGC A CCAUUGAU 5361 ATCAATGG GGCTAGCTACAACGA GCAGATGG 6349 3019 UCUGCACC A UUGAUGUC 5362 GACATCAA GGCTAGCTACAACGA GGTGCAGA 6350 3023 CACCAUUG A UGUCUACA 5363 TGTAGACA GGCTAGCTACAACGA CAATGGTG 6351 3025 CCAUUGAU G UCUACAUG 5364 CATGTAGA GGCTAGCTACAACGA CAATGGTG 6352 3029 UGAUGUCU A CAUGAUCA 5365 TGATCATG GGCTAGCTACAACGA ATCAATGG 6352 3031 AUGUCUACA UGAUCAUG 5366 CATGATCA GGCTAGCTACAACGA GACATCA 6353 3031 AUGUCUAC A UGAUCAUG 5366 CATGATCA GGCTAGCTACAACGA GTAGACAT 6354 3034 UCUACAUG A UCAUGGUC 5367 GACCATGA GGCTAGCTACAACGA CATGTAGA 6355 3037 ACAUGAUC A UGGUCAAA 5368 TTTGACCA GGCTAGCTACAACGA GATCATGT 6356 3040 UGAUCAUG G UCAAAUGU 5369 ACATTTGA GGCTAGCTACAACGA CATGATCA 6357 3045 AUGGUCAA A UGUUGGAU 5369 ACATTTGA GGCTAGCTACAACGA CATGATCA 6358 3047 GGUCAAAU G UUGGAUGA 5370 ATCCAACA GGCTAGCTACAACGA ATTTGACC 6359 3052 AAUGUUGG A UGAUUGAC 5371 TCATCCAA GGCTAGCTACAACGA CAACATT 6360 3052 AAUGUUGG A UGACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CAACATT 6360 3059 GAUGAUUG A CUCUGAAU 5374 ATTCAGAG GGCTAGCTACAACGA CAACATT 6361 3059 GAUGAUUG A CUCUGAAU 5374 ATTCAGAG GGCTAGCTACAACGA CAACATC 6362 3068 CUCUGAAU G UCGGCCA 5375 GGCCGACA GGCTAGCTACAACGA TCAGAGT 6363 3072 GAAGAUU CAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA ATTCAGAG 6364 3072 GAUGUUG G CCAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA CGACATTC 6365			5359		6347
3019 UCUGCACC A UUGAUGUC 5362 GACATCAA GGCTAGCTACAACGA GGTGCAGA 6350 3023 CACCAUUG A UGUCUACA 5363 TGTAGACA GGCTAGCTACAACGA CAATGGTG 6351 3025 CCAUUGAU G UCUACAUG 5364 CATGTAGA GGCTAGCTACAACGA ATCAATGG 6352 3029 UGAUGUCU A CAUGAUCA 5365 TGATCATG GGCTAGCTACAACGA AGCATCA 6353 3031 AUGUCUAC A UGAUCAUG 5366 CATGATCA GGCTAGCTACAACGA GACATCA 6354 3034 UCUACAUG A UCAUGGUC 5367 GACCATGA GGCTAGCTACAACGA GACATCA 6355 3037 ACAUGAUC A UGGUCAAA 5368 TTTGACCA GGCTAGCTACAACGA CATGTAGA 6355 3040 UGAUCAUG UCAAAUGU 5369 ACATTTGA GGCTAGCTACAACGA CATGATCA 6357 3045 AUGGUCAA A UGUUGGAU 5370 ATCCAACA GGCTAGCTACAACGA CATGATCA 6358 3047 GGUCAAAU G UUGGAUGA 5371 TCATCCAA GGCTAGCTACAACGA ATTTGACC 6359 3052 AAUGUUGG UGAUUGAC 5372 GTCAATCA GGCTAGCTACAACGA CAACATT 6360 3055 GUUGGAUG A UGUACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CATCCAAC 6361 3059 GAUGAUUG A CUCUGAAU 5374 ATTCAGAG GGCTAGCTACAACGA CAATCATC 6362 3066 GAUGAUUG A UGUCGGCC 5375 GGCCGACA GGCTAGCTACAACGA TCAGAGTC 6363 3072 GAAUGUCG C CAAGAUU 5377 AATCTCAGA GGCTAGCTACAACGA TCAGAGT 6363 3072 GAAUGUCG C CAAGAUU 5377 AATCTCAGA GGCTAGCTACAACGA TTCAGAG 6364 3072 GAAUGUCG C CAAGAUU 5377 AATCTCAGA GGCTAGCTACAACGA ATTCAGAG 6364			5360		6348
CACCAUUG A UGUCUACA  3023 CACCAUUG A UGUCUACA  5363 TGTAGACA GGCTAGCTACAACGA CAATGGTG  6351  3025 CCAUUGAU G UCUACAUG  5364 CATGTAGA GGCTAGCTACAACGA ATCAATGG  6352  3029 UGAUGUCU A CAUGAUCA  5365 TGATCATG GGCTAGCTACAACGA AGACATCA  6353  3031 AUGUCUAC A UGAUCAUG  5366 CATGATCA GGCTAGCTACAACGA GTAGACAT  6354  3034 UCUACAUG A UCAUGGUC  5367 GACCATGA GGCTAGCTACAACGA CATGTAGA  6355  3037 ACAUGAUC A UGGUCAAA  5368 TTTGACCA GGCTAGCTACAACGA GATCATGT  6356  3040 UGAUCAUG G UCAAAUGU  5369 ACATTTGA GGCTAGCTACAACGA CATGATCA  6357  3045 AUGGUCAA A UGUUGGAU  5370 ATCCAACA GGCTAGCTACAACGA TTGACCAT  6358  3047 GGUCAAAU G UUGGAUGA  5371 TCATCCAA GGCTAGCTACAACGA ATTTGACC  6359  3052 AAUGUUGG A UGAUUGAC  5372 GTCAATCA GGCTAGCTACAACGA CCAACATT  6360  3059 GAUGAUUG A UUGACUCU  5373 AGAGTCAA GGCTAGCTACAACGA CATCCAAC  6361  3059 GAUGAUUG A CUCUGAAU  5374 ATTCAGAG GGCTAGCTACAACGA CAATCATC  6362  3066 GACUCUGA A UGUCGGCC  5375 GGCCGACA GGCTAGCTACAACGA TCAGAGTC  6363  3072 GAAUGUCG G CCAAGAUU  5377 AATCCTAGA GGCTAGCTACAACGA ATTCAGAG  6364  3072 GAAUGUCG G CCAAGAUU  5376 TTGGCCGA GGCTAGCTACAACGA ATTCAGAG  6365			5361		6349
3025 CCAUUGAU G UCUACAUG 5364 CATGTAGA GGCTAGCTACAACGA ATCAATGG 6352 3029 UGAUGUCU A CAUGAUCA 5365 TGATCATG GGCTAGCTACAACGA AGACATCA 6353 3031 AUGUCUAC A UGAUCAUG 5366 CATGATCA GGCTAGCTACAACGA GTAGACAT 6354 3034 UCUACAUG A UCAUGGUC 5367 GACCATGA GGCTAGCTACAACGA CATGTAGA 6355 3037 ACAUGAUC A UGGUCAAA 5368 TTTGACCA GGCTAGCTACAACGA CATGATGA 6356 3040 UGAUCAUG G UCAAAUGU 5369 ACATTTGA GGCTAGCTACAACGA CATGATCA 6357 3045 AUGUCAA A UGUUGGAU 5370 ATCCAACA GGCTAGCTACAACGA TTGACCAT 6358 3047 GGUCAAAU G UUGGAUGA 5371 TCATCCAA GGCTAGCTACAACGA ATTTGACC 6359 3052 AAUGUUGG A UGAUUGAC 5372 GTCAATCA GGCTAGCTACAACGA CAACATT 6360 3055 GUUGGAUG A UUGACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CATCCAAC 6361 3059 GAUGAUUG A CUCUGAAU 5374 ATTCAGAG GGCTAGCTACAACGA CATCCAAC 6362 3066 GACUCUGA A UGUCGGCC 5375 GGCCGACA GGCTAGCTACAACGA TCAGAGTC 6363 3072 GAAUGUCG G CCAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA ATTCAGAG 6364 3072 GAAUGUCG G CCAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA ATTCAGAG 6364			5362		6350
UGAUGUCU A CAUGAUCA  5365  TGATCATG GGCTAGCTACAACGA AGACATCA 6353  3031  AUGUCUAC A UGAUCAUG 5366  CATGATCA GGCTAGCTACAACGA GTAGACAT 6354  3034  UCUACAUG A UCAUGGUC 5367  GACCATGA GGCTAGCTACAACGA CATGTAGA 6355  3037  ACAUGAUC A UGGUCAAA 5368  TTTGACCA GGCTAGCTACAACGA GATCATGT 6356  3040  UGAUCAUG G UCAAAUGU 5369  ACATTTGA GGCTAGCTACAACGA CATGATCA 6357  3045  AUGGUCAA A UGUUGGAU 5370  ATCCAACA GGCTAGCTACAACGA CATGATCA 6358  3047  GGUCAAAU G UUGGAUGA 5371  TCATCCAA GGCTAGCTACAACGA ATTTGACC 6359  3052  AAUGUUGG A UGAUUGAC 5372  GTCAATCA GGCTAGCTACAACGA CAACATT 6360  3055  GUUGGAUG A UUGACUCU 5373  AGAGTCAA GGCTAGCTACAACGA CAACCATT 6360  3059  GAUGAUUG A CUCUGAAU 5374  ATTCAGAG GGCTAGCTACAACGA CAATCATC 6362  3066  GACUCUGA A UGUCGGCC 5375  GGCCGACA GGCTAGCTACAACGA CAATCATC 6363  3072  GAAUGUCG G CCAAGAUU 5377  AATCTTGG GGCTAGCTACAACGA ATTCAGAG 6364  3078  CGGCCAACA A UGUCGGCC A ATCCACC 6365			5363	<del></del>	6351
3031 AUGUCUAC A UGAUCAUG 5366 CATGATCA GGCTAGCTACAACGA GTAGACAT 6354 3034 UCUACAUG A UCAUGGUC 5367 GACCATGA GGCTAGCTACAACGA CATGTAGA 6355 3037 ACAUGAUC A UGGUCAAA 5368 TTTGACCA GGCTAGCTACAACGA GATCATGT 6356 3040 UGAUCAUG G UCAAAUGU 5369 ACATTTGA GGCTAGCTACAACGA CATGATCA 6357 3045 AUGGUCAA A UGUUGGAU 5370 ATCCAACA GGCTAGCTACAACGA TTGACCAT 6358 3047 GGUCAAAU G UUGGAUGA 5371 TCATCCAA GGCTAGCTACAACGA ATTTGACC 6359 3052 AAUGUUGG A UGAUUGAC 5372 GTCAATCA GGCTAGCTACAACGA CCAACATT 6360 3055 GUUGGAUG A UUGACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CATCCAAC 6361 3059 GAUGAUUG A CUCUGAAU 5374 ATTCAGAG GGCTAGCTACAACGA CAATCATC 6362 3066 GACUCUGA A UGUCGGCC 5375 GGCCGACA GGCTAGCTACAACGA TCAGAGTC 6363 3072 GAAUGUCG G CCAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA CGACATTC 6365			5364		6352
3034 UCUACAUG A UCAUGGUC 5367 GACCATGA GGCTAGCTACAACGA CATGTAGA 6355 3037 ACAUGAUC A UGGUCAAA 5368 TTTGACCA GGCTAGCTACAACGA GATCATGT 6356 3040 UGAUCAUG G UCAAAUGU 5369 ACATTTGA GGCTAGCTACAACGA CATGATCA 6357 3045 AUGGUCAA A UGUUGGAU 5370 ATCCAACA GGCTAGCTACAACGA TTGACCAT 6358 3047 GGUCAAAU G UUGGAUGA 5371 TCATCCAA GGCTAGCTACAACGA ATTTGACC 6359 3052 AAUGUUGG A UGAUUGAC 5372 GTCAATCA GGCTAGCTACAACGA CCAACATT 6360 3055 GUUGGAUG A UUGACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CATCCAAC 6361 3059 GAUGAUUG A CUCUGAAU 5374 ATTCAGAG GGCTAGCTACAACGA CAATCATC 6362 3066 GACUCUGA A UGUCGGCC 5375 GGCCGACA GGCTAGCTACAACGA TCAGAGTC 6363 3068 CUCUGAAU G UCGGCCAA 5376 TTGGCCGA GGCTAGCTACAACGA ATTCAGAG 6364 3072 GAAUGUCG G CCAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA CGACATTC 6365			5365		6353
3037 ACAUGAUC A UGGUCAAA 5368 TTTGACCA GGCTAGCTACAACGA GATCATGT 6356 3040 UGAUCAUG G UCAAAUGU 5369 ACATTTGA GGCTAGCTACAACGA CATGATCA 6357 3045 AUGGUCAA A UGUUGGAU 5370 ATCCAACA GGCTAGCTACAACGA TTGACCAT 6358 3047 GGUCAAAU G UUGGAUGA 5371 TCATCCAA GGCTAGCTACAACGA ATTTGACC 6359 3052 AAUGUUGG A UGAUUGAC 5372 GTCAATCA GGCTAGCTACAACGA CCAACATT 6360 3055 GUUGGAUG A UUGACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CATCCAAC 6361 3059 GAUGAUUG A CUCUGAAU 5374 ATTCAGAG GGCTAGCTACAACGA CAATCATC 6362 3066 GACUCUGA A UGUCGGCC 5375 GGCCGACA GGCTAGCTACAACGA TCAGAGTC 6363 3068 CUCUGAAU G UCGGCCAA 5376 TTGGCCGA GGCTAGCTACAACGA ATTCAGAG 6364 3072 GAAUGUCG G CCAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA CGACATTC 6365			5366		6354
3040 UGAUCAUG G UCAAAUGU 5369 ACATTTGA GGCTAGCTACAACGA CATGATCA 6357 3045 AUGGUCAA A UGUUGGAU 5370 ATCCAACA GGCTAGCTACAACGA TTGACCAT 6358 3047 GGUCAAAU G UUGGAUGA 5371 TCATCCAA GGCTAGCTACAACGA ATTTGACC 6359 3052 AAUGUUGG A UGAUUGAC 5372 GTCAATCA GGCTAGCTACAACGA CCAACATT 6360 3055 GUUGGAUG A UUGACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CATCCAAC 6361 3059 GAUGAUUG A CUCUGAAU 5374 ATTCAGAG GGCTAGCTACAACGA CAATCATC 6362 3066 GACUCUGA A UGUCGGCC 5375 GGCCGACA GGCTAGCTACAACGA TCAGAGTC 6363 3068 CUCUGAAU G UCGGCCAA 5376 TTGGCCGA GGCTAGCTACAACGA ATTCAGAG 6364 3072 GAAUGUCG G CCAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA CGACATTC 6365			5367		6355
3045 AUGUCAA A UGUUGGAU 5370 ATCCAACA GGCTAGCTACAACGA TTGACCAT 6358 3047 GGUCAAAU G UUGGAUGA 5371 TCATCCAA GGCTAGCTACAACGA ATTTGACC 6359 3052 AAUGUUGG A UGAUUGAC 5372 GTCAATCA GGCTAGCTACAACGA CCAACATT 6360 3055 GUUGGAUG A UUGACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CATCCAAC 6361 3059 GAUGAUUG A CUCUGAAU 5374 ATTCAGAG GGCTAGCTACAACGA CAATCATC 6362 3066 GACUCUGA A UGUCGGCC 5375 GGCCGACA GGCTAGCTACAACGA TCAGAGTC 6363 3068 CUCUGAAU G UCGGCCAA 5376 TTGGCCGA GGCTAGCTACAACGA ATTCAGAG 6364 3072 GAAUGUCG G CCAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA CGACATTC 6365			5368		6356
3047 GGUCAAAU G UUGGAUGA 5371 TCATCCAA GGCTAGCTACAACGA ATTTGACC 6359 3052 AAUGUUGG A UGAUUGAC 5372 GTCAATCA GGCTAGCTACAACGA CCAACATT 6360 3055 GUUGGAUG A UUGACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CATCCAAC 6361 3059 GAUGAUUG A CUCUGAAU 5374 ATTCAGAG GGCTAGCTACAACGA CAATCATC 6362 3066 GACUCUGA A UGUCGGCC 5375 GGCCGACA GGCTAGCTACAACGA TCAGAGTC 6363 3068 CUCUGAAU G UCGGCCAA 5376 TTGGCCGA GGCTAGCTACAACGA ATTCAGAG 6364 3072 GAAUGUCG G CCAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA CGACATTC 6365			5369	ACATTIGA GGCTAGCTACAACGA CATGATCA	6357
3052 AAUGUUGG A UGAUUGAC 5372 GTCAATCA GGCTAGCTACAACGA CCAACATT 6360 3055 GUUGGAUG A UUGACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CATCCAAC 6361 3059 GAUGAUUG A CUCUGAAU 5374 ATTCAGAG GGCTAGCTACAACGA CAATCATC 6362 3066 GACUCUGA A UGUCGGCC 5375 GGCCGACA GGCTAGCTACAACGA TCAGAGTC 6363 3068 CUCUGAAU G UCGGCCAA 5376 TTGGCCGA GGCTAGCTACAACGA ATTCAGAG 6364 3072 GAAUGUCG G CCAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA CGACATTC 6365			5370	ATCCAACA GGCTAGCTACAACGA TTGACCAT	6358
3055 GUUGGAUG A UUGACUCU 5373 AGAGTCAA GGCTAGCTACAACGA CATCCAAC 6361 3059 GAUGAUUG A CUCUGAAU 5374 ATTCAGAG GGCTAGCTACAACGA CAATCATC 6362 3066 GACUCUGA A UGUCGGCC 5375 GGCCGACA GGCTAGCTACAACGA TCAGAGTC 6363 3068 CUCUGAAU G UCGGCCAA 5376 TTGGCCGA GGCTAGCTACAACGA ATTCAGAG 6364 3072 GAAUGUCG G CCAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA CGACATTC 6365	$\perp$	GGUCAAAU G UUGGAUGA	5371	TCATCCAA GGCTAGCTACAACGA ATTTGACC	6359
3059 GAUGAUUG A CUCUGAAU 5374 ATTCAGAG GGCTAGCTACAACGA CAATCATC 6362 3066 GACUCUGA A UGUCGGCC 5375 GGCCGACA GGCTAGCTACAACGA TCAGAGTC 6363 3068 CUCUGAAU G UCGGCCAA 5376 TTGGCCGA GGCTAGCTACAACGA ATTCAGAG 6364 3072 GAAUGUCG G CCAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA CGACATTC 6365			5372	GTCAATCA GGCTAGCTACAACGA CCAACATT	6360
3066 GACUCUGA A UGUCGGCC 5375 GGCCGACA GGCTAGCTACAACGA TCAGAGTC 6363 3068 CUCUGAAU G UCGGCCAA 5376 TTGGCCGA GGCTAGCTACAACGA ATTCAGAG 6364 3072 GAAUGUCG G CCAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA CGACATTC 6365		GUUGGAUG A UUGACUCU	5373	AGAGTCAA GGCTAGCTACAACGA CATCCAAC	6361
3068 CUCUGAAU G UCGGCCAA 5376 TTGGCCGA GGCTAGCTACAACGA ATTCAGAG 6364 3072 GAAUGUCG G CCAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA CGACATTC 6365		GAUGAUUG A CUCUGAAU	5374	ATTCAGAG GGCTAGCTACAACGA CAATCATC	6362
3072 GAAUGUCG G CCAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA CGACATTC 6365			5375	GGCCGACA GGCTAGCTACAACGA TCAGAGTC	6363
3072 GAAUGUCG G CCAAGAUU 5377 AATCTTGG GGCTAGCTACAACGA CGACATTC 6365	3068		5376	TTGGCCGA GGCTAGCTACAACGA ATTCAGAG	6364
3078 CGCCCAAC A INICCCCCAA TOCCCCCAA CCCTACCTACCAA CONCCCCCCA			5377	AATCTTGG GGCTAGCTACAACGA CGACATTC	
	3078	CGGCCAAG A UUCCGGGA	5378	TCCCGGAA GGCTAGCTACAACGA CTTGGCCG	

3087	UUCCGGGA G UUGGUGUC	5379	GACACCAA GGCTAGCTACAACGA TCCCGGAA	6367
3091	GGGAGUUG G UGUCUGAA	5380	TTCAGACA GGCTAGCTACAACGA CAACTCCC	6368
3093	GAGUUGGU G UCUGAAUU	5381	AATTCAGA GGCTAGCTACAACGA ACCAACTC	6369
3099	GUGUCUGA A UUCUCCCG	5382	CGGGAGAA GGCTAGCTACAACGA TCAGACAC	6370
3107	AUUCUCCC G CAUGGCCA	5383	TGGCCATG GGCTAGCTACAACGA GGGAGAAT	6371
3109	UCUCCCGC A UGGCCAGG	5384	CCTGGCCA GGCTAGCTACAACGA GCGGGAGA	6372
3112	CCCGCAUG G CCAGGGAC	5385	GTCCCTGG GGCTAGCTACAACGA CATGCGGG	6373
3119	GGCCAGGG A CCCCCAGC	5386	GCTGGGG GGCTAGCTACAACGA CCCTGGCC	6374
3126	GACCCCCA G CGCUUUGU	5387	ACAAAGCG GGCTAGCTACAACGA TGGGGGTC	6375
3128	CCCCAGC G CUUUGUGG	5388	CCACAAAG GGCTAGCTACAACGA GCTGGGGG	6376
3133	AGCGCUUU G UGGUCAUC	5389	GATGACCA GGCTAGCTACAACGA AAAGCGCT	6377
3136	GCUUUGUG G UCAUCCAG	5390	CTGGATGA GGCTAGCTACAACGA CACAAAGC	6378
3139	UUGUGGUC A UCCAGAAU	5391	ATTCTGGA GGCTAGCTACAACGA GACCACAA	6379
3146	CAUCCAGA A UGAGGACU	5392	AGTCCTCA GGCTAGCTACAACGA TCTGGATG	6380
3152	GAAUGAGG A CUUGGGCC	5393	GGCCCAAG GGCTAGCTACAACGA CCTCATTC	6381
3158	GGACUUGG G CCCAGCCA	5394	TGGCTGGG GGCTAGCTACAACGA CCAAGTCC	6382
3163	UGGGCCCA G CCAGUCCC	5395	GGGACTGG GGCTAGCTACAACGA TGGGCCCA	6383
3167	CCCAGCCA G UCCCUUGG	5396	CCAAGGGA GGCTAGCTACAACGA TGGCTGGG	6384
3176	UCCCUUGG A CAGCACCU	5397	AGGTGCTG GGCTAGCTACAACGA CCAAGGGA	6385
3179	CUUGGACA G CACCUUCU	5398	AGAAGGTG GGCTAGCTACAACGA TGTCCAAG	6386
3181	UGGACAGC A CCUUCUAC	5399	GTAGAAGG GGCTAGCTACAACGA GCTGTCCA	6387
3188	CACCUUCU A CCGCUCAC	5400	GTGAGCGG GGCTAGCTACAACGA AGAAGGTG	6388
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3255	GUACCCCA G CAGGGCUU	5416	AAGCCCTG GGCTAGCTACAACGA TGGGGTAC	6404
3260	CCAGCAGG G CUUCUUCU	5417	AGAAGAAG GGCTAGCTACAACGA CCTGCTGG	6405
3269	CUUCUUCU G UCCAGACC	5418	GGTCTGGA GGCTAGCTACAACGA AGAAGAAG	6406
3275	CUGUCCAG A CCCUGCCC	5419	GGGCAGGG GGCTAGCTACAACGA CTGGACAG	6407
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3287	UGCCCCGG G CGCUGGGG	5421	CCCCAGCG GGCTAGCTACAACGA CCGGGGCA	6409
3289	CCCCGGGC G CUGGGGGC	5422	GCCCCCAG GGCTAGCTACAACGA GCCCGGGG	6410
3296	CGCUGGGG G CAUGGUCC	5423	GGACCATG GGCTAGCTACAACGA CCCCAGCG	6411
3298	CUGGGGC A UGGUCCAC	5424	GTGGACCA GGCTAGCTACAACGA GCCCCCAG	6412
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3305	CAUGGUCC A CCACAGGC	5426	GCCTGTGG GGCTAGCTACAACGA GGACCATG	6414
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3314	CCACAGGC A CCGCAGCU	5429	AGCTGCGG GGCTAGCTACAACGA GCCTGTGG	6417
	CAGGCACC G CAGCUCAU	-	ATGAGCTG GGCTAGCTACAACGA GGTGCCTG	$\overline{}$

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3338	CAGGAGUG G CGGUGGGG	5435	CCCCACCG GGCTAGCTACAACGA CACTCCTG	6423
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3354	GACCUGAC A CUAGGGCU	5439	AGCCCTAG GGCTAGCTACAACGA GTCAGGTC	6427
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4348	AACCUAGU A CUGCCCCC	5621	GGGGCAG GGCTAGCTACAACGA ACTAGGTT	6609
4351	CUAGUACU G CCCCCAU	5622	ATGGGGG GGCTAGCTACAACGA AGTACTAG	6610
4358	UGCCCCCC A UGAGGAAG	5623	CTTCCTCA GGCTAGCTACAACGA GGGGGGCA	6611
4369	AGGAAGGA A CAGCAAUG	5624	CATTGCTG GGCTAGCTACAACGA TCCTTCCT	6612
4372	AAGGAACA G CAAUGGUG	5625	CACCATTG GGCTAGCTACAACGA TGTTCCTT	6613
4375	GAACAGCA A UGGUGUCA	5626	TGACACCA GGCTAGCTACAACGA TGCTGTTC	6614
4378	CAGCAAUG G UGUCAGUA	5627	TACTGACA GGCTAGCTACAACGA CATTGCTG	6615
4380	GCAAUGGU G UCAGUAUC	5628	GATACTGA GGCTAGCTACAACGA ACCATTGC	6616
4384	UGGUGUCA G UAUCCAGG	5629	CCTGGATA GGCTAGCTACAACGA TGACACCA	6617
4386	GUGUCAGU A UCCAGGCU	5630	AGCCTGGA GGCTAGCTACAACGA ACTGACAC	6618
4392	GUAUCCAG G CUUUGUAC	5631	GTACAAAG GGCTAGCTACAACGA CTGGATAC	6619
4397	CAGGCUUU G UACAGAGU	5632	ACTCTGTA GGCTAGCTACAACGA AAAGCCTG	6620
4399	GGCUUUGU A CAGAGUGC	5633	GCACTCTG GGCTAGCTACAACGA ACAAAGCC	6621
4404	UGUACAGA G UGCUUUUC	5634	GAAAAGCA GGCTAGCTACAACGA TCTGTACA	6622
4406	UACAGAGU G CUUUUCUG	5635	CAGAAAAG GGCTAGCTACAACGA ACTCTGTA	6623
4414	GCUUUUCU G UUUAGUUU	5636	AAACTAAA GGCTAGCTACAACGA AGAAAAGC	6624
4419	UCUGUUUA G UUUUUACU	5637	AGTAAAAA GGCTAGCTACAACGA TAAACAGA	6625
4425	UAGUUUUU A CUUUUUUU	5638	AAAAAAG GGCTAGCTACAACGA AAAAACTA	6626
		<del> </del>		

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4434	Cบบบบบบบ G บบบบGบบบ	5639	AAACAAAA GGCTAGCTACAACGA AAAAAAAG	6627
4439	UUUGUUUU G UUUUUUUA	5640	TAAAAAA GGCTAGCTACAACGA AAAACAAA	6628
4451	UUUUAAAG A UGAAAUAA	5641	TTATTTCA GGCTAGCTACAACGA CTTTAAAA	6629
4456	AAGAUGAA A UAAAGACC	5642	GGTCTTTA GGCTAGCTACAACGA TTCATCTT	6630
4462	AAAUAAAG A CCCAGGGG	5643	CCCCTGGG GGCTAGCTACAACGA CTTTATTT	6631

Input Sequence = HSERB2R. Cut Site = R/Y
Arm Length = 8. Core Sequence = GGCTAGCTACAACGA
HSERB2R (Human c-erb-B-2 mRNA; 4473 bp)

Table V: Human HER2 Synthetic DNAzyme and Target molecules

Gene	Pos	Target	Seq	RPI#	DNAzyme	Seq ID
erbB2	377	CCACCA A UGCCAG	6632	24998	cuggca GGCTAGCTACAACGA uggugg B	6637
erbB2	766	UUCUCCG A UGUGUAA	6633	24999	uuacaca GGCTAGCTACAACGA cggagaa B	6638
erbB2	1202	UGUGCU A UGGUCU	6634	25000	agacca GGCTAGCTACAACGA agcaca B	6639
erbB2	1444	CCUCAGC G UCUUCCA	6635	25001	uggaaga GGCTAGCTACAACGA gcugagg B	6640
erbB2	1583	AUCCACC A UAACACC	6636	25002	gguguua GGCTAGCTACAACGA gguggau B	6641

A, G, C, T (italic) = deoxy

lower case = 2'-O-methyl

 $\mathbf{B}$  = inverted deoxyabasic derivative

Table VI: Human HIV Hammerhead Ribozyme and Substrate Sequence

Substrate	Seq ID	Hammerhead	Seq ID
AUAAAGCU U GCCUUGAG	6642	CUCAAGGC CUGAUGAGGCCGUUAGGCCGAA AGCUUUAU	6727
AGGCUAAU U UUUUAGGG	6643	CCCUAAAA CUGAUGAGGCCGUUAGGCCGAA AUUAGCCU	6728
GGCUAAUU U UUUAGGGA	6644	UCCCUAAA CUGAUGAGGCCGUUAGGCCGAA AAUUAGCC	6729
GCCUCAAU A AAGCUUGC	6645	GCAAGCUU CUGAUGAGGCCGUUAGGCCGAA AUUGAGGC	6730
UUUCGGGU U UAUUACAG	6646	CUGUAAUA CUGAUGAGGCCGUUAGGCCGAA ACCCGAAA	6731
GCAGGACU C GGCUUGCU	6647	AGCAAGCC CUGAUGAGGCCGUUAGGCCGAA AGUCCUGC	6732

Input Sequence = HIV1. Cut Site = UH/.

Arm Length = 8. Core Sequence = CUGAUGAG GCCGUUAGGC CGAA

HIV1 Consensus

Underlined region can be any X sequence or linker, as described herein.

Table VII: Human HIV Inozyme and Substrate Sequence

ſ	Substrate	Seq	Inozyme	Seq
1		ID		) ID
۲Ì	UGGAAAAC A GAUGGCAG	6648	CUGCCAUC CUGAUGAGGCCGUUAGGCCGAA IUUUUCCA	6733
Τ	AAUAAAGC U UGCCUUGA	6649	UCAAGGCA CUGAUGAGGCCGUUAGGCCGAA ICUUUAUU	6734
۱۲	UCUCUAGO A GUGGOGOO	6650	GGCGCCAC CUGAUGAGGCCGUUAGGCCGAA ICUAGAGA	6735
٦,	GGAGCCAC C CCACAAGA	6651	UCUUGUGG CUGAUGAGGCCGUUAGGCCGAA IUGGCUCC	6736
Τ	AGUGGCGC C CGAACAGG	6652	CCUGUUCG CUGAUGAGGCCGUUAGGCCGAA ICGCCACU	6737
Γ	GUGGCGCC C GAACAGGG	6653	CCCUGUUC CUGAUGAGGCCGUUAGGCCGAA IGCGCCAC	6738
-	CUCGACGC A GGACUCGG	6654	CCGAGUCC CUGAUGAGGCCGUUAGGCCGAA ICGUCGAG	6739
	CGCAGGAC U CGGCUUGC	6655	GCAAGCCG CUGAUGAGGCCGUUAGGCCGAA IUCCUGCG	6740

Input Sequence = HIV1. Cut Site = CH/.

Arm Length = 8. Core Sequence = CUGAUGAG GCCGUUAGGC CGAA

HIV1 Consensus

Underlined region can be any X sequence or linker, as described herein. "I" stands for Inosine.

Table VIII: Human HIV Zinzyme and Substrate Sequence

Substrate	Seq	Zinzyme	Seq
UCAAUAAA G CUUGCCUU	6656	AAGGCAAG GCCGAAAGGCGAGUGAGGUCU UUUAUUGA	6741
AGGACUCG G CUUGCUGA	6657	UCAGCAAG GCCGAAAGGCGAGUGAGGUCU CGAGUCCU	6742
GCAGUGGC G CCCGAACA	6658	UGUUCGGG GCCGAAAGGCGAGUGAGGUCU GCCACUGC	6743
CUCUAGCA G UGGCGCCC	6659	GGGCGCCA GCCGAAAGGCGAGUGAGGUCU UGCUAGAG	6744
UAGCAGUG G CGCCCGAA	6660	UUCGGGCG GCCGAAAGGCGAGUGAGGUCU CACUGCUA	6745
AGAGAUGG G UGCGAGAG	6661	CUCUCGCA GCCGAAAGGCGAGUGAGGUCU CCAUCUCU	6746
AGAUGGGU G CGAGAGCG	6662	CGCUCUCG GCCGAAAGGCGAGUGAGGUCU ACCCAUCU	6747
CUCUCGAC G CAGGACUC	6663	GAGUCCUG GCCGAAAGGCGAGUGAGGUCU GUCGAGAG	6748

Input Sequence = HIV1. Cut Site = G/Y Arm Length = 8. Core Sequence = GCcgaaagGCGaGuCaaGGuCu HIV1 Consensus

Table IX: Human HIV DNAzyme and Substrate Sequence

Substrate	Seq	DNAzyme	Seq
	ID		ID
UCAAUAAA G CUUGCCUU	6656	AAGGCAAG GGCTAGCTACAACGA TTTATTGA	6749
AGGACUCG G CUUGCUGA	6657	TCAGCAAG GGCTAGCTACAACGA CGAGTCCT	6750
GCAGUGGC G CCCGAACA	6658	TGTTCGGG GGCTAGCTACAACGA GCCACTGC	6751
CUCUAGCA G UGGCGCCC	6659	GGGCGCCA GGCTAGCTACAACGA TGCTAGAG	6752
UAGCAGUG G CGCCCGAA	6660	TTCGGGCG GGCTAGCTACAACGA CACTGCTA	6753
AGAGAUGG G UGCGAGAG	6661	CTCTCGCA GGCTAGCTACAACGA CCATCTCT	6754
AGAUGGGU G CGAGAGCG	6662	CGCTCTCG GGCTAGCTACAACGA ACCCATCT	6755
CUCUCGAC G CAGGACUC	6663	GAGTCCTG GGCTAGCTACAACGA GTCGAGAG	6756
UAUGGAAA A CAGAUGGC	6664	GCCATCTG GGCTAGCTACAACGA TTTCCATA	6757
GAAAACAG A UGGCAGGU	6665	ACCTGCCA GGCTAGCTACAACGA CTGTTTTC	6758
AAGCCUCA A UAAAGCUU	6666	AAGCTTTA GGCTAGCTACAACGA TGAGGCTT	6759
GGAGAGAG A UGGGUGCG	6667	CGCACCCA GGCTAGCTACAACGA CTCTCTCC	6760
GACGCAGG A CUCGGCUU	6668	AAGCCGAG GGCTAGCTACAACGA CCTGCGTC	6761

Input Sequence = HIV1. Cut Site = R/Y
Arm Length = 8. Core Sequence = GGCTAGCTACAACGA
HIV1 Consensus

Table X: Human HIV Amberzyme and Substrate Sequence

Substrate	Sed	Amberzyme	Seg
	G.		ID
UCAAUAAA G CUUGCCUU	9599	AAGGCAAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUUAUUGA	6762
AGGACUCG G CUUGCUGA	6657	UCAGCAAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGAGUCCU	6763
GCAGUGGC G CCCGAACA	6658	UGUUCGGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GCCACUGC	6764
CUCUAGCA G UGGCGCCC	6599	GGGCGCCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGCUAGAG	6765
UAGCAGUG G CGCCCGAA	6660	UUCGGGCG GGAGGAACUCC CU UCAAGGACAUCGUCCGGG CACUGCUA	6766
AGAGAUGG G UGCGAGAG	6661	CUCUCGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAUCUCU	6767
AGAUGGGU G CGAGAGCG	6662	CGCUCUCG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCCAUCU	6768
CUCUCGAC G CAGGACUC	6663	GAGUCCUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUCGAGAG	6269
GGAAACA G AUGGCAGG	6999	CCUGCCAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGUUUUCC	6770
AUGGGUGC G AGAGCGUC	6670	GACGCUCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GCACCCAU	6771
AAAAGGGG G GAUUGGGG	6671	CCCCAAUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCCUUUU	6772
AGNAAAGG G GGGAUUGG	6672	CCAAUCCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCUUUUCU	6773
GAAAAGGG G GGAUUGGG	6673	CCCAAUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCUUUUC	6774
GGCUAGAA G GAGAGAGA	6674	UCUCUCUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUCUAGCC	6775
UUUJAAAA G AAAAGGGG	6675	CCCCUUUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUUUAAAA	9//9
UAUGGCAG G AAGAAGCG	9299	CGCUUCUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGCCAUA	6777
UGGCGCC G AACAGGGA	6677	UCCCUGUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGGCGCCA	6778
GAGAGAUG G GUGCGAGA	6678	UCUCGCAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUCUCUC	6779
CGACGCAG G ACUCGGCU	6679	AGCCGAGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGCGUCG	6780
UGACUAGO G GAGGOUAG	0899	CUAGCCUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GCUAGUCA	6781
UAGAAGGA G AGAGAUGG	6681	CCAUCUCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCCUUCUA	6782
AGGAGAGA G AUGGGUGC	6682	GCACCCAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCUCUCCU	6783
GAAGGAGA G AGAUGGGU	6683	ACCCAUCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCUCCUUC	6784
UCGACGCA G GACUCGGC	6684	GCCGAGUC GGAGGAACUCC CU UCAAGGACAUCGUCCGGG UGCGUCGA	6785
CUAGCAGU G GCGCCCGA	6685	UCGGGCGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACUGCUAG	6786
GACUAGCG G AGGCUAGA	6686	UCUAGECU GGAGGAAACUCE CU UCAAGGACAUCGUCCGGG CGCUAGUC	6787
GCUAGAAG G AGAGAGAU	6687	AUCUCUCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUUCUAGC	6788
AAAGGGGG G AUUGGGGG	6688	CCCCCAAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCCCUUU	6249

Input Sequence = HIV1. Cut Site = G/.

Arm Length = 8. Core Sequence = GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG
HIV1 Consensus

Table XI: Human HIV Enzymatic Nucleic Acid and Target molecules

Target	Seq ID	RPI#	Enzymatic Nucleic Acid	Seq ID
GAGAUGG G UGCGAGA	6718	25003	ucucgca GGCTAGCTACAACGA ccaucuc B	6790
AUGGAAA A CAGAUGG	6719	25004	ccaucug GGCTAGCTACAACGA uuuccau B	6791
AAAACAG A UGGCAGG	6720	25005	ccugcca GGCTAGCTACAACGA cuguuuu B	6792
AGCCUCA A UAAAGCU	6721	25006	agcuuua GGCTAGCTACAACGA ugaggcu B	6793
GAGAGAG A UGGGUGC	6722	25007	gcaccca GGCTAGCTACAACGA cucucuc B	6794
CAAUAAA G CUUGCCU	6723	25008	aggcaag gccgaaaggCgagugaGGuCu uuuauug B	6795
GGACUCG G CUUGCUG	6724	25009	cagcaag gccgaaaggCgagugaGGuCu cgagucc B	6796
GAGAUGG G UGCGAGA	6718	25010	ucucgca gccgaaaggCgagugaGGuCu ccaucuc B	6797
GAUGGGU G CGAGAGC	6725	25011	gcucucg gccgaaaggCgagugaGGuCu acccauc B	6798
UCUCGAC G CAGGACU	6726	25012	aguccug gccgaaagg <u>C</u> gagugaGGu <u>C</u> u gucgaga B	6799

G = Guanosine

A, G, C, T (italic) = deoxy lower case = 2'-O-methyl

s = phosphorothioate 3'-internucleotide linkage

C = 2'-deoxy-2'-Amino cytidine

B = inverted deoxyabasic derivative

Table XII: Human HIV-1 Sequences

Genbank	Seq Name(s)	Subtype	Organism
Acc#			
A04321	IIIB LAI	В	HIV-1
AF110962	96BW0402	С	HIV-1
AF110963	96BW0407	С	HIV-1
AF110968	96BW0504	С	HIV-1
AF110965	96BW0409	С	HIV-1
AF110966	96BW0410	С	HIV-1
AF110964	96BW0408	С	HIV-1
AF110975	96BW15C05	С	HIV-1
AF110974	96BW15C02	С	HIV-1
AF110973	96BW15B03	С	HIV-1
AF107771	UGSE8131	Α	HIV-1
U69585	WCIPR854	В	HIV-1
U69588	WCIPR855	В	HIV-1
U69589	WCIPR9011	В	HIV-1
U69591	WCIPR9018	В	HIV-1
U69592	WCIPR9031	В	HIV-1
U69593	WCIPR9032	В	HIV-1
U69586	WCIPR8546	В	HIV-1
AF003888	NL43WC001	В	HIV-1
X01762	REHTLV3 LAI IIIB	В	HIV-1
AF075719	MNTQ MNcloneTQ	В	HIV-1
AJ239083	97CAMP645MO	MO	HIV-1
D86069	PM213	В	HIV-1
K02083	PV22	В	HIV-1
M93259	YU10	В	HIV-1
Z11530	F12CG	В	HIV-1
AB032740	TH022 95TNIH022	CRF01_AE	HIV-1
AF107770	SE7812	CRF02_AG	HIV-1
AF070521	NL43E9	B	HIV-1
AF033819	HXB2-copy LAI	В	HIV-1
AF003887	WC001	В	HIV-1
AF069140	DH123	B	HIV-1
AF110967	96BW0502	<u>c</u>	HIV-1
	HXB2 HXB2CG	В	HIV-1
K03455	111111111111111111111111111111111111111	В	HIV-1
M96155	P896 89.6		<del></del>
X04415	MAL MALCG MB2059	ADK	HIV-1
AF133821		D	
D86068	MCK1	B	HIV-1
U69587	WCIPR8552	B B	HIV-1
U69590	WCIPR9012	B CDE04 AE	HIV-1
AB032741	95TNIH047 TH047	CRF01_AE	HIV-1
AB023804	93IN101	C	HIV-1
AF193275	97BL006	A A	HIV-1
AF197340	90CF11697	CRF01_AE	HIV-1
AF224507	WK	В	HIV-1
AJ271445	GB8 GB8-46R	В	HIV-1
AF197338	93TH057	CRF01_AE	HIV-1
AF197339	93TH065	CRF01_AE	HIV-1
AF197341	90CF4071	CRF01_AE	HIV-1

1100504	051401555		1104 4
U69584	85WCIPR54	В	HIV-1
L31963	TH475A LAI	В	HIV-1
U46016	ETH2220 C2220	С	HIV-1
U21135	WEAU160 GHOSH	В	HIV-1
AF042106	MBCC18R01	В	HIV-1
K03454	ELI	D	HIV-1
U51188	90CF402 90CR402	CRF01_AE	HIV-1
U51189	93TH253	CRF01_AE	HIV-1
U34603	H0320-2A12	В	HIV-1
M38429	JRCSF JR-CSF	В	HIV-1
M17451	RF HAT3	В	HIV-1
L02317	BC BCSG3	В	HIV-1
M93258	YU2 YU2X	В	HIV-1
M22639	Z2Z6 Z2 CDC-Z34	D	HIV-1
AF004394	AD8, AD87 ADA	В	HIV-1
AF049337	94CY032-3	CRF04_cpx	HIV-1
U34604	3202A21	В	HIV-1
L20587	ANT70	0.	HIV-1
D10112	CAM1	В	HIV-1
U54771	CM240	CRF01_AE	HIV-1
U43096	D31	В	HIV-1
U37270	C18MBC	В	HIV-1
U43141	HAN	В	HIV-1
U23487	MANC	В	HIV-1
M17449	MNCG MN	<del>В</del>	HIV-1
L20571	MVP5180	1 0	HIV-1
M27323	NDK	D D	HIV-1
M38431	NY5CG	В	HIV-1
M26727	OYI, 397	В В	HIV-1
K02007	SF2 LAV2 ARV2	<del>  B</del>	HIV-1
M62320	U455 U455A	A	HIV-1
U26546	WR27	<del>                                     </del>	HIV-1
AF004885	Q23	<del>  B</del>	HIV-1
AF044885	MBC200	B	HIV-1
AF042100	MBC925	В	HIV-1
AJ006287			HIV-1
AF067154	89SP061 89ES061 93IN999 301999	В	HIV-1
			L
AF067155	95IN21068 21068	C	HIV-1
AJ006022	YBF30	N	HIV-1
AF061642	SE6165 G6165	G	HIV-1
AF119820	97PVCH GR11	CRF04_cpx	HIV-1
AF119819	97PVMY GR84	CRF04_cpx	HIV-1
K02013	LAI BRU	В	HIV-1
L39106	IBNG	CRF02_AG	HIV-1
U12055	LW123	В	HIV-1
M19921	NL43 pNL43	В	HIV-1
AF061640	HH8793-1.1	G	HIV-1
AF061641	HH8793-12.1	G	HIV-1
AF063223	DJ263	CRF02_AG	HIV-1
AF049495	NC7	В	HIV-1
AF049494	499JC16	В	HIV-1
AF086817	TWCYS LM49	В	HIV-1
AF064699	BFP90	CRF06_cpx	HIV-1

AF084936	DRCBL	G	HIV-1
AF193253	VI1310 AF193253	CRF05_DF	HIV-1
AF190127	VI991	Н	HIV-1
AF193276	KAL153-2	CRF03_AB	HIV-1
AF192135	BW2117	AJ	HIV-1
AJ288982	95ML127	CRF06_cpx	HIV-1
AJ288981	97SE1078	CRF06_cpx	HIV-1
AJ271370	YBF106	N	HIV-1
AJ237565	97NOGIL3	ADHK	HIV-1

## **CLAIMS**

## What we claim is:

- 1. A siRNA nucleic acid molecule that modulates expression of a nucleic acid molecule encoding HER2.
- 2. A enzymatic nucleic acid molecule that modulates expression of a nucleic acid molecule encoding HER2.
- 3. An enzymatic nucleic acid molecule comprising a sequence selected from the group consisting of SEQ ID NOs: 5644-6631 and 6637-6641.
- 4. An enzymatic nucleic acid molecule comprising at least one binding arm wherein one or more of said binding arms comprises a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs: 4656-5643 and 6632-6636.
- 5. A siRNA nucleic acid molecule comprising a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs: 4656-5643 and 6632-6636.
- 6. The nucleic acid molecule of any of claims 1-5, wherein said nucleic acid molecule is adapted to treat cancer.
- 7. The enzymatic nucleic acid molecule of any of claims 2-4, wherein said enzymatic nucleic acid molecule has an endonuclease activity to cleave RNA having HER2 sequence.
- 8. The enzymatic nucleic acid molecule of claim 2, wherein said enzymatic nucleic acid molecule is a DNAzyme in a 10-23 configuration.
- 9. The enzymatic nucleic acid molecule of claim 8, wherein said enzymatic nucleic acid molecule comprises a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs: 4656-5643 and 6632-6636.

- 10. The enzymatic nucleic acid molecule of claim 8, wherein said enzymatic nucleic acid molecule comprises a sequence selected from the group consisting of SEQ ID NOs: 5644-6631 and 6637-6641.
- 11. The nucleic acid molecule of any of claims 1, 2, 4 or 5, wherein said nucleic acid molecule comprises between 12 and 100 bases complementary to a RNA having HER2 sequence.
- 12. The nucleic acid molecule of claim of any of claims 1, 2, 4 or 5, wherein said nucleic acid molecule comprises between 14 and 24 bases complementary to a RNA having HER2 sequence.
- 13. The nucleic acid molecule of any of claims 1-5, wherein said nucleic acid molecule is chemically synthesized.
- 14. The nucleic acid molecule of any of claims 1-5, wherein said nucleic acid molecule comprises at least one 2'-sugar modification.
- 15. The nucleic acid molecule of any of claims 1-5, wherein said nucleic acid molecule comprises at least one nucleic acid base modification.
- 16. The nucleic acid molecule of any of claims 1-5, wherein said nucleic acid molecule comprises at least one phosphate backbone modification.
- 17. A mammalian cell comprising the nucleic acid molecule of any of claims 1-5.
- 18. The mammalian cell of claim 17, wherein said mammalian cell is a human cell.
- 19. A method of reducing HER2 activity in a cell, comprising contacting said cell with the nucleic acid molecule of any of claims 1-5, under conditions suitable for said reduction of HER2 activity.
- 20. A method of treatment of a subject having a condition associated with the level of HER2, comprising contacting cells of said subject with the nucleic acid molecule of any of claims 1-5, under conditions suitable for said treatment.
- 21. The method of claim 20 further comprising the use of one or more drug therapies under conditions suitable for said treatment.

- 22. A method of cleaving RNA having HER2 sequence comprising contacting an enzymatic nucleic acid molecule of any of claims 2-4 with said RNA under conditions suitable for the cleavage.
- 23. The method of claim 22, wherein said cleavage is carried out in the presence of a divalent cation.
- 24. The method of claim 23, wherein said divalent cation is  $Mg^{2+}$ .
- 25. The nucleic acid molecule of any of claims 1-5, wherein said nucleic acid molecule comprises a cap structure, wherein the cap structure is at the 5'-end, 3'-end, or both the 5'-end and the 3'-end of said nucleic acid molecule.
- 26. The nucleic acid molecule of claim 25, wherein the cap structure at the 5'-end, 3'-end, or both the 5'-end and the 3'-end comprises a 3',3'-linked or 5',5'-linked deoxyabasic ribose derivative.
- 27. An expression vector comprising a nucleic acid sequence encoding at least one nucleic acid molecule of any of claims 1-5 in a manner that allows expression of the nucleic acid molecule.
- 28. A mammalian cell comprising an expression vector of claim 27.
- 29. The mammalian cell of claim 28, wherein said mammalian cell is a human cell.
- 30. The expression vector of claim 27, wherein said nucleic acid molecule is in a DNAzyme configuration.
- 31. The expression vector of claim 27, wherein said expression vector further comprises a sequence for a nucleic acid molecule complementary to a nucleic acid molecule having HER2 sequence.
- 32. The expression vector of claim 27, wherein said expression vector comprises a nucleic acid sequence encoding two or more of said nucleic acid molecules, which may be the same or different.
- 33. The expression vector of claim 32, wherein said expression vector further comprises a sequence encoding an antisense nucleic acid molecule or siRNA molecule complementary to a nucleic acid molecule having HER2 sequence.

- 34. A method for treatment of cancer comprising administering to a subject the nucleic acid molecule of any of claims 1-5 under conditions suitable for said treatment.
- 35. The method of claim 34, wherein said cancer is breast cancer.
- 36. The method of claim 34, wherein said cancer is ovarian cancer.
- 37. The method of claim 34, wherein said method further comprises administering to said subject one or more other therapies under conditions suitable for said treatment.
- 38. The method of claim 21 wherein said other drug therapies are chosen from monoclonal antibody therapy, chemotherapy, radiation therapy, and analgesic therapy.
- 39. The method of claim 37 wherein said other drug therapies are chosen from monoclonal antibody therapy, chemotherapy, radiation therapy, and analgesic therapy.
- 40. The method of claim 38, wherein said chemotherapy is selected from the group consisting of paclitaxel (Taxol), docetaxel, cisplatin, methotrexate, cyclophosphamide, doxorubin, fluorouracil carboplatin, edatrexate, gemcitabine, and vinorelbine.
- 41. The method of claim 38, wherein said monoclonal antibody is Herceptin (trastuzumab).
- 42. The method of claim 39, wherein said chemotherapy is selected from the group consisting of paclitaxel (Taxol), docetaxel, cisplatin, methotrexate, cyclophosphamide, doxorubin, fluorouracil carboplatin, edatrexate, gemcitabine, and vinorelbine.
- 43. The method of claim 39, wherein said monoclonal antibody is Herceptin (trastuzumab).
- 44. A composition comprising a nucleic acid molecule of any of claims 1-5 in a pharmaceutically acceptable carrier.

- 45. A method of administering to a cell a nucleic acid molecule of any of claims 1-5 comprising contacting said cell with the nucleic acid molecule under conditions suitable for said administration.
- 46. The method of claim 45, wherein said cell is a mammalian cell.
- 47. The method of claim 45, wherein said cell is a human cell.
- 48. The method of claim 45, wherein said administration is in the presence of a delivery reagent.
- 49. The method of claim 48, wherein said delivery reagent is a lipid.
- 50. The method of claim 49, wherein said lipid is a cationic lipid.
- 51. The method of claim 49, wherein said lipid is a phospholipid.
- 52. The method of claim 48, wherein said delivery reagent is a liposome.
- 53. A siRNA nucleic acid molecule that modulates expression of a nucleic acid molecule encoding K-Ras.
- 54. A siRNA nucleic acid molecule that modulates expression of a nucleic acid molecule encoding H-Ras or N-Ras.
- 55. An enzymatic nucleic acid molecule that modulates expression of a nucleic acid molecule encoding K-Ras.
- 56. An enzymatic nucleic acid molecule that moduates expression of a nucleic acid molecule encoding H-Ras or N-Ras.
- 57. An enzymatic nucleic acid molecule comprising a sequence of SEQ ID NOs: 2329-4655.
- 58. An enzymatic nucleic acid molecule comprising at least one binding arm wherein one or more of said binding arms comprises a sequence complementary to a sequence of SEQ ID NOs: 1-2328.
- 59. A siRNA nucleic acid molecule comprising a sequence complementary to a sequence of SEQ ID NOs: 1-2328.

- 60. The nucleic acid molecule of any of claims 53-59, wherein said nucleic acid molecule is adapted to treat cancer.
- 61. The enzymatic nucleic acid molecule of any of claims 55, 57 or 58, wherein said enzymatic nucleic acid molecule has an endonuclease activity to cleave RNA having a K-Ras sequence.
- 62. The enzymatic nucleic acid molecule of any of claims 56-58, wherein said enzymatic nucleic acid molecule has an endonuclease activity to cleave RNA having an H-Ras sequence.
- 63. The enzymatic nucleic acid molecule of claim 55 or claim 56, wherein said enzymatic nucleic acid molecule is a DNAzyme in a 10-23 configuration.
- 64. The enzymatic nucleic acid molecule of claim 63, wherein said enzymatic nucleic acid molecule comprises a sequence complementary to a sequence of SEO ID NOs: 1-2328.
- 65. The enzymatic nucleic acid molecule of claim 63, wherein said enzymatic nucleic acid molecule comprises a sequence of SEQ ID NOs: 2329-4655.
- 66. The nucleic acid molecule of any of claims 53-59, wherein said nucleic acid molecule comprises between 12 and 100 bases complementary to an RNA having K-Ras, H-Ras and/or N-Ras sequence.
- 67. The nucleic acid molecule of any of claims 53-59, wherein said nucleic acid molecule comprises between 14 and 24 bases complementary to an RNA having K-Ras, H-Ras and/or N-Ras sequence.
- 68. The nucleic acid molecule of any of claims 53-59, wherein said nucleic acid molecule is chemically synthesized.
- 69. The nucleic acid molecule of any of claims 53-59, wherein said nucleic acid molecule comprises at least one 2'-sugar modification.
- 70. The nucleic acid molecule of any of claims 53-59, wherein said nucleic acid molecule comprises at least one nucleic acid base modification.
- 71. The nucleic acid molecule of any of claims 53-59, wherein said enzymatic nucleic acid molecule comprises at least one phosphate backbone modification.

- 72. A mammalian cell comprising the nucleic acid molecule of any of claims 53-59.
- 73. The mammalian cell of claim 72, wherein said mammalian cell is a human cell.
- 74. A method of reducing K-Ras activity in a cell, comprising contacting said cell with the nucleic acid molecule of any of claims 53, 55, 57, 58 or 59, under conditions suitable for said reduction of K-Ras activity.
- 75. A method of reducing H-Ras activity in a cell, comprising contacting said cell with the nucleic acid molecule of any of claims 54, 56, 57, 58 or 59, under conditions suitable for said reduction of H-Ras activity.
- 76. A method of treatment of a subject having a condition associated with the level of K-Ras, comprising contacting cells of said subject with the nucleic acid molecule of any of claims 53, 55, 57, 58 or 59, under conditions suitable for said treatment.
- 77. A method of treatment of a subject having a condition associated with the level of H-Ras, comprising contacting cells of said subject with the nucleic acid molecule of any of claims 54, 56, 57, 58 or 59, under conditions suitable for said treatment
- 78. The method of claim 76 further comprising the use of one or more drug therapies under conditions suitable for said treatment.
- 79. The method of claim 77 further comprising the use of one or more drug therapies under conditions suitable for said treatment
- 80. A method of cleaving RNA having a K-Ras sequence comprising contacting an nucleic acid molecule of any of claims 53, 55, 57, 58 or 59, with said RNA under conditions suitable for the cleavage.
- 81. A method of cleaving RNA having a H-Ras sequence comprising contacting an nucleic acid molecule of any of claims 54, 56, 57, 58 or 59, with said RNA under conditions suitable for the cleavage.
- 82. The method of claim 80, wherein said cleavage is carried out in the presence of a divalent cation.

- 83. The method of claim 81, wherein said cleavage is carried out in the presence of a divalent cation.
- 84. The method of claim 82, wherein said divalent cation is  $Mg^{2+}$ .
- 85. The method of claim 83, wherein said divalent cation is Mg<sup>2+</sup>.
- 86. The nucleic acid molecule of any of claims 53-59, wherein said nucleic acid molecule comprises a cap structure, wherein the cap structure is at the 5'-end, 3'-end, or both the 5'-end and the 3'-end of said nucleic acid molecule.
- 87. The nucleic acid molecule of claim 86, wherein the cap structure comprises a 3',3'-linked or 5',5'-linked deoxyabasic ribose derivative.
- 88. An expression vector comprising a nucleic acid sequence encoding at least one nucleic acid molecule of any of claims 53-59 in a manner that allows expression of the nucleic acid molecule.
- 89. A mammalian cell comprising an expression vector of claim 88.
- 90. The mammalian cell of claim 89, wherein said mammalian cell is a human cell.
- 91. The expression vector of claim 88, wherein said nucleic acid molecule is in a DNAzyme configuration.
- 92. The expression vector of claim 88, wherein said expression vector further comprises a sequence for a nucleic acid molecule complementary to a nucleic acid molecule having a K-Ras sequence.
- 93. The expression vector of claim 88, wherein said expression vector further comprises a sequence for a nucleic acid molecule complementary to a nucleic acid molecule having a H-Ras sequence.
- 94. The expression vector of claim 88, wherein said expression vector comprises a nucleic acid sequence encoding two or more of said nucleic acid molecules, which may be the same or different.
- 95. The expression vector of claim 88, wherein said expression vector further comprises a sequence encoding an antisense nucleic acid molecule or siRNA

- nucleic acid molecule complementary to a nucleic acid molecule having a K-Ras sequence.
- 96. The expression vector of claim 88, wherein said expression vector further comprises a sequence encoding an antisense nucleic acid molecule or siRNA nucleic acid molecule complementary to a nucleic acid molecule having a H-Ras sequence.
- 97. A method for the treatment of cancer comprising administering to a subject the nucleic acid molecule of any of claims 53-59 under conditions suitable for said treatment.
- 98. The method of claim 97, wherein said cancer is colorectal cancer.
- 99. The method of claim 97, wherein said cancer is lung cancer.
- 100. The method of claim 97, wherein said cancer is prostate cancer.
- 101. The method of claim 97, wherein said cancer is bladder cancer.
- 102. The method of claim 97, wherein said cancer is breast cancer.
- 103. The method of claim 97, wherein said cancer is pancreatic cancer.
- 104. The method of claim 97, wherein said method further comprises administering to said patient one or more other therapies under conditions suitable for said treatment.
- 105. The method of claim 78 wherein said other drug therapies are chosen from monoclonal antibody therapy, chemotherapy, radiation therapy, and analgesic therapy.
- 106. The method of claim 79 wherein said other drug therapies are chosen from monoclonal antibody therapy, chemotherapy, radiation therapy, and analgesic therapy.
- 107. The method of claim 104 wherein said other drug therapies are chosen from monoclonal antibody therapy, chemotherapy, radiation therapy, and analgesic therapy.

- 108. The method of claim 105, wherein said chemotherapy is selected from the group consisting of paclitaxel (Taxol), docetaxel, cisplatin, methotrexate, cyclophosphamide, doxorubin, fluorouracil carboplatin, edatrexate, gemcitabine, and vinorelbine.
- 109. The method of claim 106, wherein said chemotherapy is selected from the group consisting of paclitaxel (Taxol), docetaxel, cisplatin, methotrexate, cyclophosphamide, doxorubin, fluorouracil carboplatin, edatrexate, gemcitabine, and vinorelbine.
- 110. The method of claim 107, wherein said chemotherapy is selected from the group consisting of paclitaxel (Taxol), docetaxel, cisplatin, methotrexate, cyclophosphamide, doxorubin, fluorouracil carboplatin, edatrexate, gemcitabine, and vinorelbine.
- 111. A composition comprising a nucleic acid molecule of any of claims 53-59 and a pharmaceutically acceptable carrier.
- 112. A method of administering to a cell a nucleic acid molecule of any of claims 53-59 comprising contacting said cell with the enzymatic nucleic acid molecule under conditions suitable for said administration.
- 113. The method of claim 112, wherein said cell is a mammalian cell.
- 114. The method of claim 113, wherein said cell is a human cell.
- 115. The method of claim 112, wherein said administration is in the presence of a delivery reagent.
- 116. The method of claim 115, wherein said delivery reagent is a lipid.
- 117. The method of claim 116, wherein said lipid is a cationic lipid.
- 118. The method of claim 116, wherein said lipid is a phospholipid.
- 119. The method of claim 115, wherein said delivery reagent is a liposome.
- 120. A siRNA nucleic acid molecule which modulates expression of a nucleic acid molecule encoding HIV or a component of HIV.

- 121. An enzymatic nucleic acid molecule which modulates expression of a nucleic acid molecule encoding HIV or a component of HIV, wherein said enzymatic nucleic acid molecule is in an Inozyme, G-cleaver, Zinzyme or Amberzyme configuration.
- 122. An enzymatic nucleic acid molecule comprising a sequence selected from the group consisting of SEQ ID NOs. 6727-6799.
- 123. An enzymatic nucleic acid molecule comprising at least one binding arm wherein one or more of said binding arms comprises a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs. 6642-6726.
- 124. A siRNA nucleic acid molecule comprising a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs. 6642-6726.
- 125. The nucleic acid of any of claims 120-124, wherein said nucleic acid molecule is adapted to HIV infection or acquired immunodeficiency syndrome (AIDS).
- 126. The enzymatic nucleic acid molecule of any of claims 121-123, wherein said enzymatic nucleic acid molecule has an endonuclease activity to cleave RNA having a HIV sequence.
- 127. The enzymatic nucleic acid molecule of claim 121, wherein said enzymatic nucleic acid molecule is in an Inozyme configuration.
- 128. The enzymatic nucleic acid molecule of claim 121, wherein said enzymatic nucleic acid molecule is in a Zinzyme configuration.
- 129. The enzymatic nucleic acid molecule of claim 121, wherein said enzymatic nucleic acid molecule is in a G-cleaver configuration.
- 130. The enzymatic nucleic acid molecule of claim 121, wherein said enzymatic nucleic acid molecule is in an Amberzyme configuration.
- 131. The enzymatic nucleic acid molecule of claim 123, wherein said enzymatic nucleic acid molecule is in a DNAzyme configuration.
- 132. The enzymatic nucleic acid molecule of claim 123, wherein said enzymatic nucleic acid molecule is in a Hammerhead configuration.

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- 133. The enzymatic nucleic acid molecule of claim 127, wherein said Inozyme comprises a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs. 6648-6655.
- 134. The enzymatic nucleic acid molecule of claim 127, wherein said Inozyme comprises a sequence selected from the group consisting of SEQ ID NOs. 6733-6740.
- 135. The enzymatic nucleic acid molecule of claim 128, wherein said Zinzyme comprises a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs. 6656-6663 and 6723-6726.
- 136. The enzymatic nucleic acid molecule of claim 128, wherein said Zinzyme comprises a sequence selected from the group consisting of SEQ ID NOs. 6741-6748 and 6795-6799.
- 137. The enzymatic nucleic acid molecule of claim 130, wherein said Amberzyme comprises a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs. 6656-6688.
- 138. The enzymatic nucleic acid molecule of claim 130, wherein said Amberzyme comprises a sequence selected from the group consisting of SEQ ID NOs. 6762-6789.
- 139. The enzymatic nucleic acid molecule of claim 131, wherein said DNAzyme comprises a sequence complementary to a sequence selected from the group consisting of SEO ID NOs. 6656-6668 and 6718-6722.
- 140. The enzymatic nucleic acid molecule of claim 131, wherein said DNAzyme comprises a sequence selected from the group consisting of SEQ ID NOs. 6749-6761 and 6790-6794.
- 141. The enzymatic nucleic acid molecule of claim 132, wherein said Hammerhead comprises a sequence complementary to a sequence selected from the group consisting of SEQ ID NOs. 6642-6647.
- 142. The enzymatic nucleic acid molecule of claim 132, wherein said Hammerhead comprises a sequence selected from the group consisting of SEQ ID NOs 6727-6732.

- 143. The nucleic acid molecule of any of claims 120-124, wherein said nucleic acid molecule comprises between 12 and 100 bases complementary to a nucleic acid molecule encoding HIV.
- 144. The nucleic acid molecule of any of claims 120-124, wherein said nucleic acid molecule comprises between 14 and 24 bases complementary to a nucleic acid molecule encoding HIV.
- 145. The nucleic acid molecule of any of claims 120-124, wherein said nucleic acid molecule is chemically synthesized.
- 146. The nucleic acid molecule of any of claims 120-124, wherein said nucleic acid molecule comprises at least one 2'-sugar modification.
- 147. The nucleic acid molecule of any of claims 120-124, wherein said nucleic acid molecule comprises at least one nucleic acid base modification.
- 148. The nucleic acid molecule of any of claims 120-124, wherein said nucleic acid molecule comprises at least one phosphate backbone modification.
- 149. A mammalian cell comprising the nucleic acid molecule of any of claims 120-124
- 150. The mammalian cell of claim 149, wherein said mammalian cell is a human cell.
- 151. A method of reducing HTV activity in a cell, comprising contacting said cell with the nucleic acid molecule of any of claims 120-124, under conditions suitable for said reduction of HTV activity.
- 152. A method of treatment of a subject having a condition associated with the level of HIV, comprising contacting cells of said subject with the nucleic acid molecule of any of claims 120-124, under conditions suitable for said treatment.
- 153. The method of claim 151 further comprising the use of one or more drug therapies under conditions suitable for said treatment.
- 154. The method of claim 152 further comprising the use of one or more drug therapies under conditions suitable for said treatment.

- 155. A method of cleaving RNA of an HIV gene comprising contacting an enzymatic nucleic acid molecule of any of claims 121-123 with said RNA of a HIV gene under conditions suitable for the cleavage.
- 156. The method of claim 155, wherein said cleavage is carried out in the presence of a divalent cation.
- 157. The method of claim 156, wherein said divalent cation is Mg<sup>2+</sup>.
- 158. The nucleic acid molecule of any of claims 120-124, wherein said nucleic acid molecule comprises a cap structure, wherein the cap structure is at the 5'-end, 3'-end, or both the 5'-end and the 3'-end of said nucleic acid molecule.
- 159. The nucleic acid molecule of claim 158, wherein the cap structure at the 5'-end, 3'-end, or both the 5'-end and the 3'-end comprises a 3',3'-linked or 5',5'-linked deoxyabasic ribose derivative.
- 160. An expression vector comprising a nucleic acid sequence encoding at least one nucleic acid molecule of any of claims 120-124 in a manner which allows expression of the nucleic acid molecule.
- 161. A mammalian cell comprising an expression vector of claim 160.
- 162. The mammalian cell of claim 161, wherein said mammalian cell is a human cell.
- 163. An expression vector comprising a nucleic acid sequence encoding at least one nucleic acid molecule of any of claims 122 or 123 in a manner which allows expression of the nucleic acid molecule, wherein said nucleic acid molecule is in a hammerhead configuration.
- 164. The expression vector of claim 160, wherein said expression vector further comprises a sequence for a nucleic acid molecule complementary to the RNA of HIV.
- 165. The expression vector of claim 160, wherein said expression vector comprises a nucleic acid sequence encoding two or more of said nucleic acid molecules, which may be the same or different.

- 166. The expression vector of claim 165, wherein said expression vector further comprises a sequence encoding a siRNA nucleic acid molecule complementary to the RNA of HIV gene.
- 167. A method for treatment of acquired immunodeficiency syndrome (AIDS) or an AIDS related condition comprising administering to a subject the nucleic acid molecule of any of claims 120-124 under conditions suitable for said treatment.
- 168. The method of claim 167, wherein said AIDS related condition is Kaposi's sarcoma, lymphoma, cervical cancer, squamous cell carcinoma, cardiac myopathy, rheumatic disease, or opportunistic infection.
- 169. The method of claim 167, wherein said method further comprises administering to said subject one or more other therapies.
- 170. The nucleic acid molecule of claim 121 or claim 123, wherein said nucleic acid molecule comprises at least five ribose residues, at least ten 2'-O-methyl modifications, and a 3'- end modification.
- 171. The nucleic acid molecule of claim 170, wherein said nucleic acid molecule further comprises phosphorothioate linkages on at least three of the 5' terminal nucleotides.
- 172. The nucleic acid molecule of claim 170, wherein said 3'- end modification is a 3'-3' inverted abasic moiety.
- 173. The method of claim 153 wherein said other drug therapies chosen from antiviral therapy, monoclonal antibody therapy, chemotherapy, radiation therapy, analgesic therapy, and anti-inflammatory therapy.
- 174. The method of claim 173, wherein said antiviral therapy is chosen from treatment with AZT, ddC, ddI, d4T, 3TC, Ribavirin, delvaridine, nevirapine, efravirenz, ritonavir, saquinivir, indinavir, amprenivir, nelfinavir, and lopinavir.
- 175. The method of claim 154 wherein said other drug therapies are chosen from antiviral therapy, monoclonal antibody therapy, chemotherapy, radiation therapy, analgesic therapy, and anti-inflammatory therapy.

- 176. The method of claim 175, wherein said antiviral therapy is chosen from treatment with AZT, ddC, ddI, d4T, 3TC, Ribavirin, delvaridine, nevirapine, efravirenz, ritonavir, saquinivir, indinavir, amprenivir, nelfinavir, and lopinavir.
- 177. The method of claim 169 wherein said other drug therapies are chosen from antiviral therapy, monoclonal antibody therapy, chemotherapy, radiation therapy, analgesic therapy, and anti-inflammatory therapy.
- 178. The method of claim 177, wherein said antiviral therapy is chosen from treatment with AZT, ddC, ddI, d4T, 3TC, Ribavirin, delvaridine, nevirapine, efravirenz, ritonavir, saquinivir, indinavir, amprenivir, nelfinavir, and lopinavir.
- 179. A pharmaceutical composition comprising a nucleic acid molecule of any of claims 120-124 in a pharmaceutically acceptable carrier.
- 180. The nucleic acid molecule of claim 120 or 121, wherein said component of HIV is nef.
- 181. The nucleic acid molecule of claim 120 or 121, wherein said component of HIV is vif.
- 182. The nucleic acid molecule of claim 120 or 121, wherein said component of HIV is tat.
- 183. The nucleic acid molecule of claim 120 or 121, wherein said component of HIV is rev.
- 184. The nucleic acid molecule of claim 120 or 121, wherein said component of HIV is LTR.
- 185. The nucleic acid molecule of claim 184, wherein said LTR is the 3'-LTR.
- 186. The nucleic acid molecule of claim 184, wherein said LTR is the 5'-LTR.
- 187. A method of administering to a cell a nucleic acid molecule of any of claims 120-124 comprising contacting said cell with the nucleic acid molecule under conditions suitable for said administration.
- 188. The method of claim 187, wherein said cell is a mammalian cell.

- 189. The method of claim 187, wherein said cell is a human cell.
- 190. The method of claim 187, wherein said administration is in the presence of a delivery reagent.
- 191. The method of claim 190, wherein said delivery reagent is a lipid.
- 192. The method of claim 191, wherein said lipid is a cationic lipid.
- 193. The method of claim 191, wherein said lipid is a phospholipid.
- 194. The method of claim 190, wherein said delivery reagent is a liposome.

# Figure 1: Examples of Nuclease Stable Ribozyme Motifs

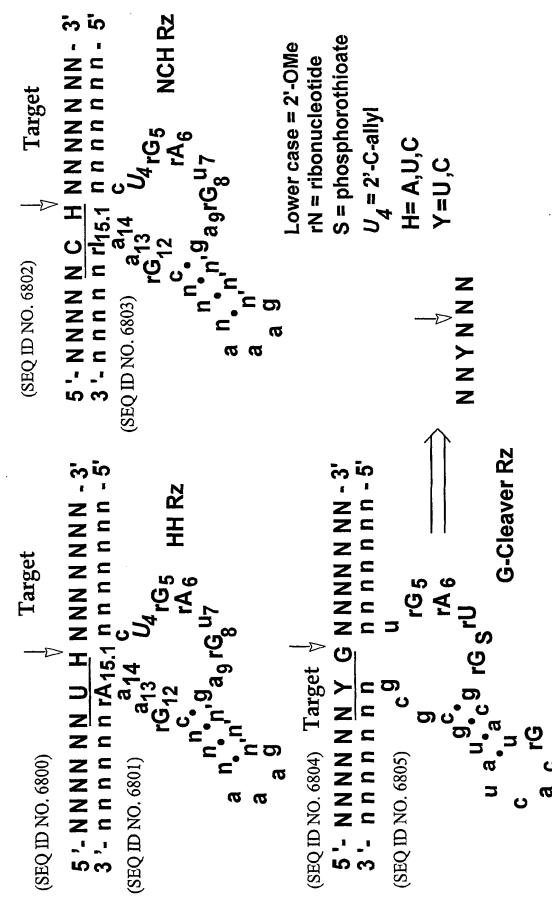
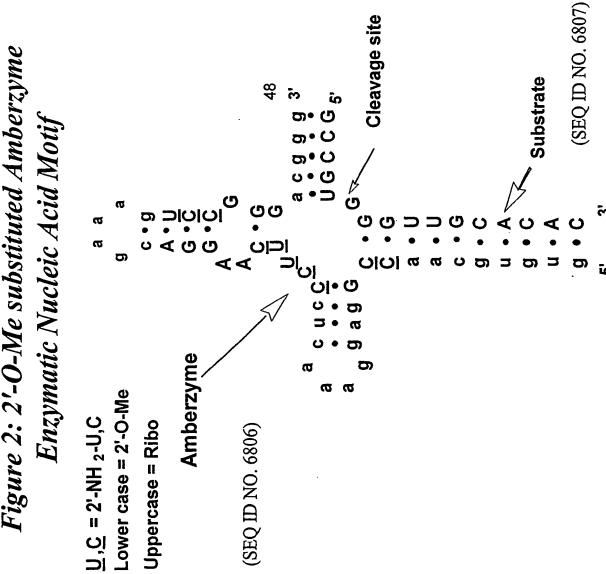


Figure 2: 2'-0-Me substituted Amberzyme



## Figure 3: Stabilized Zinzyme Ribozyme Motif

Target (SEQ ID NO. 6809) (SEQ ID NO. 6808) a- oboboob CGGC GCG 5' G Zinzyme gusseng SACGGAC a ī Legend

Uppercase: indicates natural ribo residues

C: indicates 2'-deoxy-2'-amino Cytidine

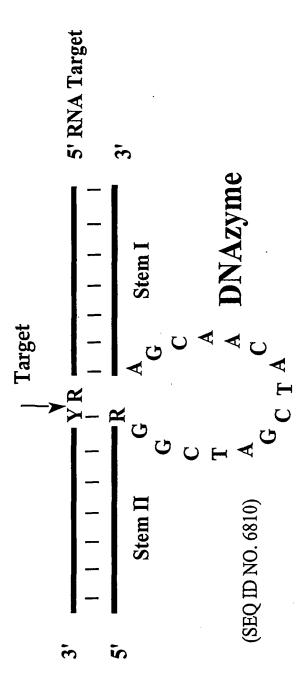
Lowercase: 2'-0-methyl

S: phosphorothioate/phosphorodithioate linkage

B: 3'-3' abasic moiety

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Figure 4: DNAzyme Motif



Legend
Y = U or C
R = A or G

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(74) Agent: WILLIAMS, Andrew, W.; McDonnell Boehnen Hulbert & Berghoff, Suite 3200, 300 South Wacker Drive, Chicago, IL 60606 (US). (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

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### Published:

- with international search report

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: NUCLEIC ACID TREATMENT OF DISEASES OR CONDITIONS RELATED TO LEVELS OF RAS, HER2 AND HIV

(57) Abstract: The present invention relates to nucleic acid molecules, including enzymatic nucleic acid molecules, such as DNAzymes (e.g. DNA enzymes, catalytic DNA), siRNA, aptamers, and antisense that modulate the expression of Ras genes such as K-Ras, H-Ras, and/or N-Ras, HIV genes such as HIV-1, and HER2 genes.



International application No.

PCT/US02/16840

A. CLASSIFICATION OF SUBJECT MATTER  IPC(7) : C12N 5/00, C07H 21/04  US CL : 435/366; 435/363, 536/23.2, 536/24.5  According to International Patent Classification (IPC) or to both national classification and IPC  B. FIELDS SEARCHED  Minimum documentation searched (classification system followed by classification symbols)  U.S.: 435/366; 435/363, 536/23.2, 536/24.5				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched				
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Biosis, Medline, Scisearch, CA, and USPTO sequence search databases.				
C. DOCU	MENTS CONSIDERED TO BE RELEVANT			
Category *	Citation of document, with indication, where ap		Relevant to claim No.	
x - Y	WO 99/31118 A1 (GEORGETOWN UNIVERSITY) Abstract, specification throughout.	24 June 1999 (24.06.1999),	2, 6, 7, 11-13, 19-37, and 44-52	
• 1			8, 38-43	
Y	US 5,968,748 A (BENNETT et al) 19 October 1999	(19.10.1999), throughout.	. 1, 6, 11-52	
Y	US 5,910,583 A (MARKS et al) 08 June 1999 (08.0	6.1999). Throughout.	1, 6, 11-52	
Y	NISHIKURA, K. A Short Primaer on RNAi: RNA	-directed RNA Polymerase Acts as a	1, 6, 11-52	
A	Key Catalyst. Cell. 16 November 2001, Vol. 107,	pages 415-418, throughout.	1, 6, 11-52	
Y  A	COUSENS, L. et al. Tyrosine Kinase Receptor wi Receptor Shares Chromosomal Location with neu O Vol. 230, pages 1132-1139. Particularly figure 1.	th Extensive Homolgy to EGF ncogene. Science. December 1985,	1, 6,	
	documents are listed in the continuation of Box C.	See patent family annex.		
* Special categories of cited documents:  "A" document defining the general state of the art which is not considered to be of particular relevance		"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention		
"E" earlier application or patent published on or after the international filing date		"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone		
establish specified	t which may throw doubts on priority claim(s) or which is cited to the publication date of another citation or other special reason (as ) t referring to an oral disclosure, use, exhibition or other means	"Y" document of particular relevance; the considered to involve an inventive structure of the combined with one or more other such being obvious to a person skilled in the combined with the combined with one or more other such being obvious to a person skilled in the combined with	ep when the document is the documents, such combination	
"P" document published prior to the international filing date but later than the priority date claimed		"&" document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report		
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Washington, D.C. 20231 Facsimile No. (703) 305-3230		Telephone No. (703) 308-0196		

International application No.

PCT/US02/16840

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)			
This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:			
1. Claim Nos.: because they relate to subject matter not required to be searched by this Authority, namely:			
2. Claim Nos.:  because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:			
3. Claim Nos.:  because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).			
Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)			
This International Searching Authority found multiple inventions in this international application, as follows: Please See Continuation Sheet			
1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.  2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.			
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.: 1-4,6-8 and 11-52			
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:			
Remark on Protest  The additional search fees were accompanied by the applicant's protest.  No protest accompanied the payment of additional search fees.			
Form PCT/ISA/210 (continuation of first sheet(1)) (July 1998)			

### BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING:

Group 1-988, 989-993, 4966-7292, and 14276-14348 drawn to a ribozyme comprising SEQ ID NOS. 5644-6631, 6637-6641, 2329-4655, and 6727-6799 respectively, and claims respectively drawn to these.

Groups 994-1981, 1982-1986, 7293-9620, and 14349-14433, drawn to ribozymes targeted to a sequence comprising any one of SEQ ID NOS. 4656-5643, 6632-6636, 1-2328, and 6642-6726 respectively, and claims respectively drawn to these.

Groups 1987-2974, 2975-2979, and 9621-11948, 14434-14518, drawn to siRNA targeted to a sequence comprising any one of SEQ ID NOS. 4656-5643, 6632-6636, 1-2328 and 6642-6726 respectively, and claims respectively drawn to these.

Groups 2980-3967, 3968-3972, and 11949-14275, drawn to a DNAzyme targeted to a sequence comprising any one of SEQ ID NOS. 4656-5643, 6632-6636, and 2329-4655 respectively, and claims respectively drawn to these.

Groups 3973-4960, and 4961-4965, drawn to a DNAzyme comprising SEQ ID NOS. 5644-6631, and 6637-6641 respectively, and claims respectively drawn to these.

Groups 14519-14526, drawn to the inozyme targeted to the sequence comprising any one of SEQ ID NOS 6727-6799, respectively.

Groups 14527-14534, drawn to the inozyme of SEQ ID NOS 6733-6740, respectively.

Groups 14535-14542 and 14543-14546, drawn to the zinzyme targeted to the sequence comprising any one of SEQ ID NOS 6656-6663, and 6723-6726, respectively.

Groups 14547-14554, and 14553-14559, drawn to the zinzyme of SEQ ID NOS 6741-6748, and 6795-6799, respectively.

Groups 14560-14592, drawn to the amberzyme targeted to the sequence comprising any one of SEQ ID NOS 6656-6688, respectively.

Groups 14593-14620, drawn to the amberzyme of SEQ ID NOS 6762-6789, respectively.

Groups 14621-14633, and 14634-14638, drawn to the DNAzyme targeted to the sequence comprising any one of SEQ ID NOS 6749-6761 and 6790-6794, respectively.

Groups 14639-14651, and 14652-14656, drawn to the DNAzyme of SEQ ID NOS 6749-6761, and 6790-6794, respectively.

Groups 14657-14662, drawn to the hammerhead ribozyme targeted to the sequence comprising any one of SEQ ID NOS 6642-6647, respectively.

Groups 14663-14668, drawn to the hammerhead ribozyme of SEQ ID NOS 6727-6732, respectively.

This International Searching Authority considers that the international application does not comply with the requirements of unity of invention (Rules 13.1, 13.2 and 13.3) for the reasons indicated below:

The claims of the instant inventions are drawn to siRNA and enzymatic nucleic acids comprising ribozymes and DNAzymes, and including the motif-types hammerhead, hairpin, hepatitis Delta virus, group I intron, VS nucleic acid, amberzyme, zinzyme, RNAse P nucleic acid, NCH motif, and G-cleaver. All are directed to targets comprising Ras isoforms, the HER2 protein, and any protein encoded by the HIV virus. These targets and effector molecules comprise several thousand nucleotide sequences. This international searching authority considers that the international application does not comply with the requirements of unity of

invention (Rules 13.1, 13.2, and 13.3) for the reasons indicated below:

According to the guidelines in Section (f)(i)(a) of Annex B of the PCT Administrative Instructions, the special technical feature as defined by PCT Rule 13.2 shall be considered to be met when all the alternatives of a Markush-group are of similar nature. For chemical alternatives, such as the claimed sequences, the Markush group shall be regarded as being of similar nature when

all alternatives have a common property or activity and

(B)(1) a common structure is present, i.e, a significant structure is shared by all of the alternatives or (B)(2) in cases where the common structure cannot be the unifying criteria, all alternatives belong to an art recognized class of compounds in the art to which the invention pertains.

The instant sequences are considered to be each separate inventions for the following reasons: The sequences do not meet the criteria of (A), common property or activity and (B)(1), they do not share, one with another, a common core structure. Accordingly, unity of invention between the antisense sequences is lacking and each sequence claimed is considered to constitute a special technical feature. The sequences each behave in a different way in the context of the claimed invention. Each member of the class cannot be substituted, one for the other, with the expectation that the same intended result would be acheived.

Although the ribozyme or antisense sequences or targets listed above each target and modulate expression of any Ras isoforms, the HER2 protein, and any nucleotide encoding a protein of the HIV virus, each ribozyme sequence and/or motif, and each antisense sequence is considered to be unrelated, since each ribozyme or antisense oligo claimed is structurally and functionally independent and distinct for the following reasons: each ribozyme or antisense oligo has a unique nucleotide sequence, each ribozyme or antisense oligo targets a different and specific region of their respective genes, and each ribozyme or antisense oligo, upon binding to the transcript, functionally modulates (increases or decreases) the expression of the gene. Furthermore, a search of more than one (1) of the ribozyme or antisense oligo sequences in this application presents an undue burden on the Patent and Trademark Office due to the complex nature of the search and corresponding examination of more than one (1) of the claimed ribozyme or antisense oligo sequences. In view of the foregoing, one (1) target sequence from the above listed claims and its corresponding antisense OR ribozyme sequence (regardless of motif-type) is considered to be a reasonable number of sequences for examination. Accordingly, applicants are required to elect one (1) target sequence and its corresponding siRNA OR ribozyme sequence from claims to be searched in the instant application.

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